

FIG. 1

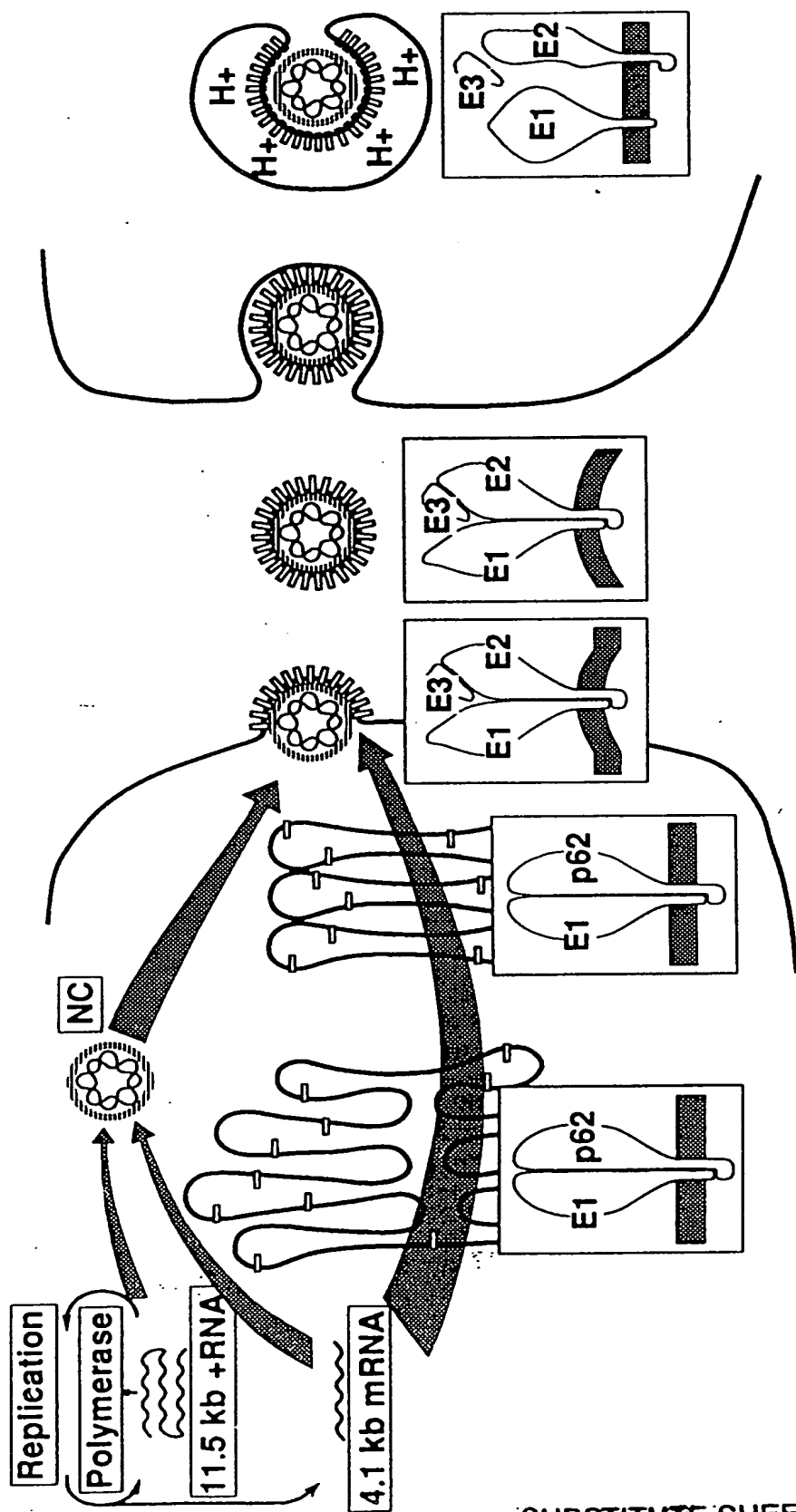


Figure 1

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T000120" 90FT0650

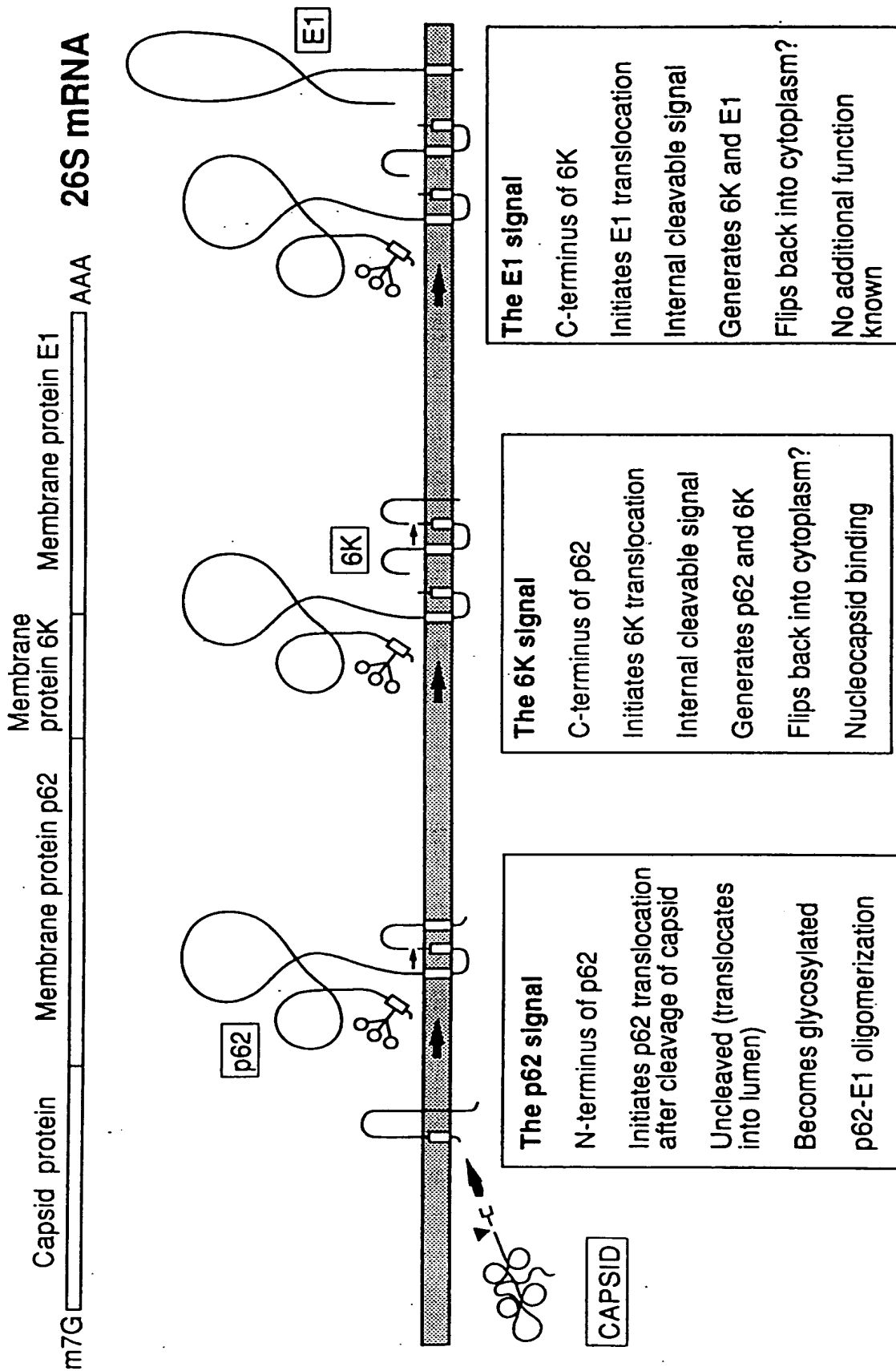


Figure 2

FOOT 20" 90TFO650

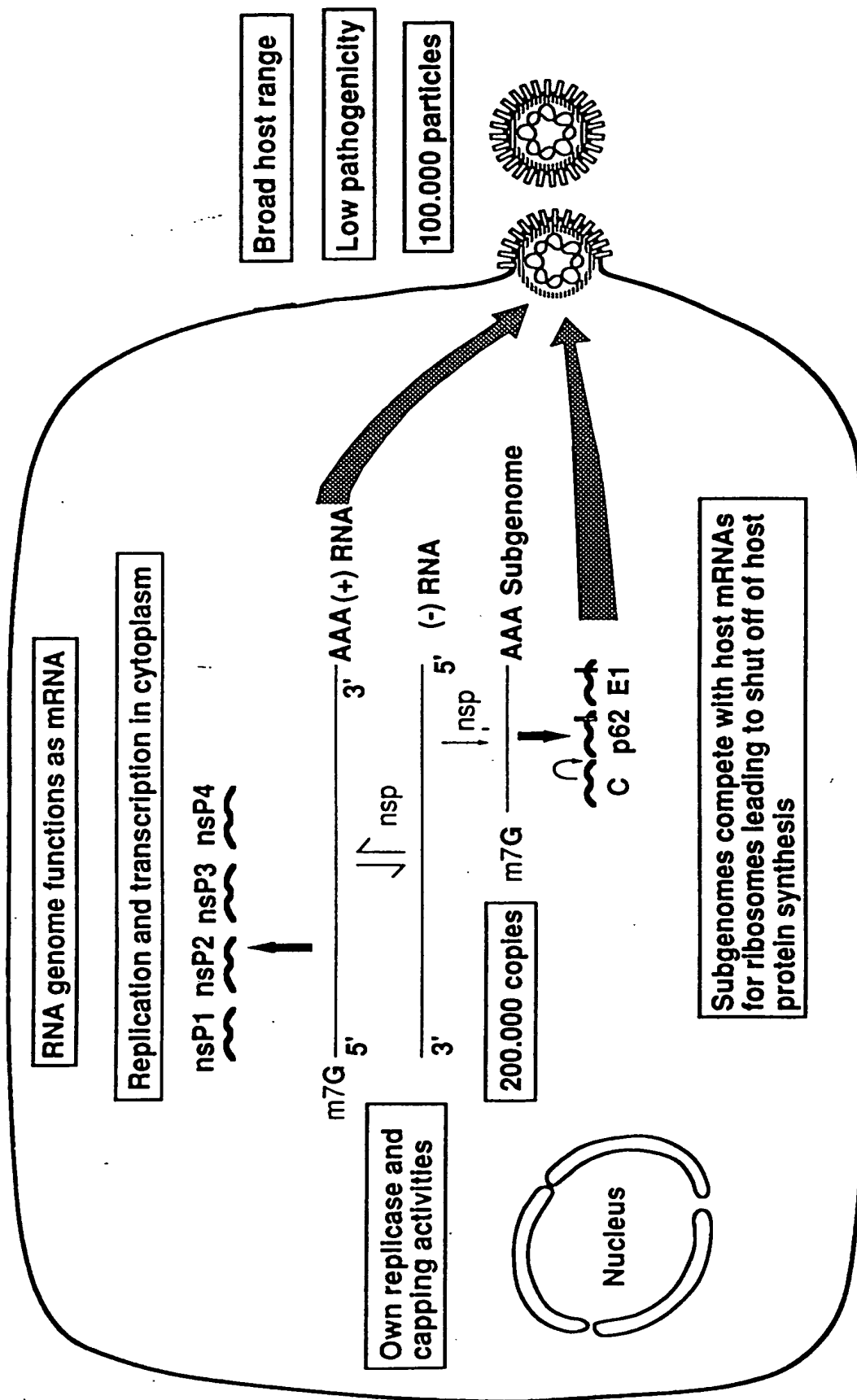


Figure 3

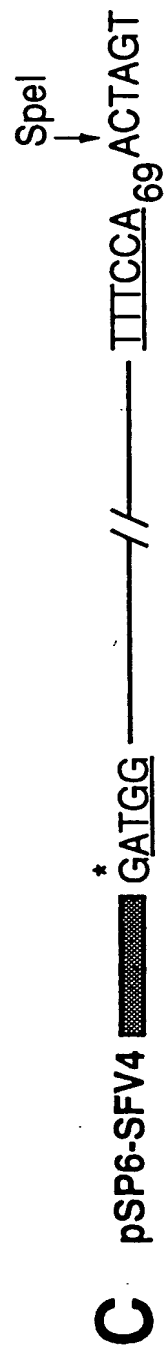
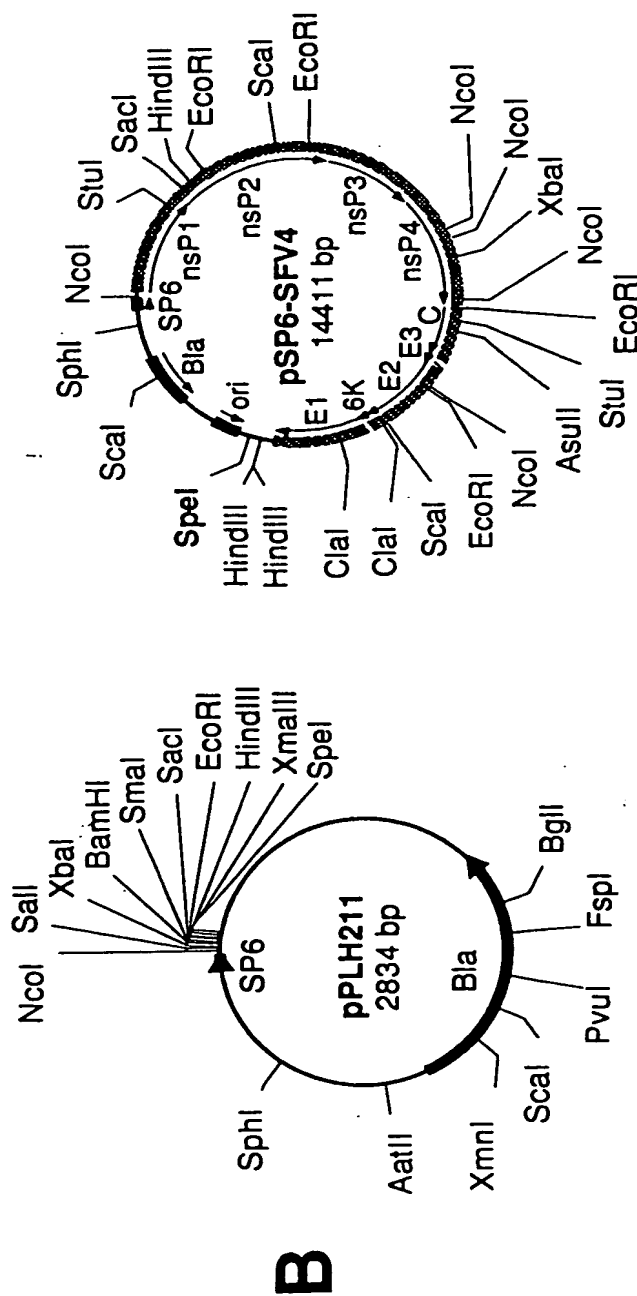
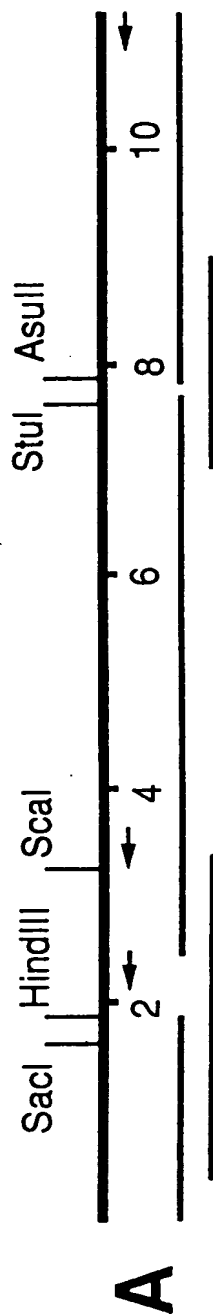


Figure 4

Figure 5 (1)

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GATGGCGGAT GTGTGACATA CACGACGCCA AAAGATTTTG TTCCAGCTCC TGCCACCTCC 60

GCTACGCGAG AGATTAACCA CCCACG ATG GCC GCC AAA GTG CAT GTT GAT ATT 113
Met Ala Ala Lys Val His Val Asp Ile

5

GAG GCT GAC AGC CCA TTC ATC AAG TCT TTG CAG AAG GCA TTT CCG 158
Glu Ala Asp Ser Pro Phe Ile Lys Ser Leu Gln Lys Ala Phe Pro
10 15 20

TCG TTC GAG GTG GAG TCA TTG CAG GTC ACA CCA AAT GAC CAT GCA 203
Ser Phe Glu Val Glu Ser Leu Gln Val Thr Pro Asn Asp His Ala
25 30 35

AAT GCC AGA GCA TTT TCG CAC CTG GCT ACC AAA TTG ATC GAG CAG 248
Asn Ala Arg Ala Phe Ser His Leu Ala Thr Lys Leu Ile Glu Gln
40 45 50

GAG ACT GAC AAA GAC ACA CTC ATC TTG GAT ATC GGC AGT GCG CCT 293
Glu Thr Asp Lys Asp Thr Leu Ile Leu Asp Ile Gly Ser Ala Pro
55 60 65

TCC AGG AGA ATG ATG TCT ACG CAC AAA TAC CAC TGC GTA TGC CCT 338
Ser Arg Arg Met Met Ser Thr His Lys Tyr His Cys Val Cys Pro
70 75 80

ATG CGC AGC GCA GAA GAC CCC GAA AGG CTC GAT AGC TAC GCA AAG 383
Met Arg Ser Ala Glu Asp Pro Glu Arg Leu Asp Ser Tyr Ala Lys
85 90 95

AAA CTG GCA GCG GCC TCC GGG AAG GTG CTG GAT AGA GAG ATC GCA 428
Lys Leu Ala Ala Ala Ser Gly Lys Val Leu Asp Arg Glu Ile Ala
100 105 110

GGA AAA ATC ACC GAC CTG CAG ACC GTC ATG GCT ACG CCA GAC GCT 473
Gly Lys Ile Thr Asp Leu Gln Thr Val Met Ala Thr Pro Asp Ala
115 120 125

GAA TCT CCT ACC TTT TGC CTG CAT ACA GAC GTC ACG TGT CGT ACG 518
Glu Ser Pro Thr Phe Cys Leu His Thr Asp Val Thr Cys Arg Thr
130 135 140

GCA GCC GAA GTG GCC GTA TAC CAG GAC GTG TAT GCT GTA CAT GCA 563
Ala Ala Glu Val Ala Val Tyr Gln Asp Val Tyr Ala Val His Ala
145 150 155

CCA ACA TCG CTG TAC CAT CAG GCG ATG AAA GGT GTC AGA ACG GCG 608
Pro Thr Ser Leu Tyr His Gln Ala Met Lys Gly Val Arg Thr Ala
160 165 170

TAT TGG ATT GGG TTT GAC ACC ACC CCG TTT ATG TTT GAC GCG CTA 653
Tyr Trp Ile Gly Phe Asp Thr Thr Pro Phe Met Phe Asp Ala Leu
175 180 185

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Figure 5 (2)

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GCA GGC GCG TAT CCA ACC TAC GCC ACA AAC TGG GCC GAC GAG CAG 698
 Ala Gly Ala Tyr Pro Thr Tyr Ala Thr Asn Trp Ala Asp Glu Gln
 190 195 200

GTG TTA CAG GCC AGG AAC ATA GGA CTG TGT GCA GCA TCC TTG ACT 743
 Val Leu Gln Ala Arg Asn Ile Gly Leu Cys Ala Ala Ser Leu Thr
 205 210 215

GAG GGA AGA CTC GGC AAA CTG TCC ATT CTC CGC AAG AAG CAA TTG 788
 Glu Gly Arg Leu Gly Lys Leu Ser Ile Leu Arg Lys Lys Gln Leu
 220 225 230

AAA CCT TGC GAC ACA GTC ATG TTC TCG GTA GGA TCT ACA TTG TAC 833
 Lys Pro Cys Asp Thr Val Met Phe Ser Val Gly Ser Thr Leu Tyr
 235 240 245

ACT GAG AGC AGA AAG CTA CTG AGG AGC TGG CAC TTA CCC TCC GTA 878
 Thr Glu Ser Arg Lys Leu Leu Arg Ser Trp His Leu Pro Ser Val
 250 255 260

TTC CAC CTG AAA GGT AAA CAA TCC TTT ACC TGT AGG TGC GAT ACC 923
 Phe His Leu Lys Gly Lys Gln Ser Phe Thr Cys Arg Cys Asp Thr
 265 270 275

ATC GTA TCA TGT GAA GGG TAC GTA GTT AAG AAA ATC ACT ATG TGC 968
 Ile Val Ser Cys Glu Gly Tyr Val Val Lys Lys Ile Thr Met Cys
 280 285 290

CCC GGC CTG TAC GGT AAA ACG GTA GGG TAC GCC GTG ACG TAT CAC 1013
 Pro Gly Leu Tyr Gly Lys Thr Val Gly Tyr Ala Val Thr Tyr His
 295 300 305

GCG GAG GGA TTC CTA GTG TGC AAG ACC ACA GAC ACT GTC AAA GGA 1058
 Ala Glu Gly Phe Leu Val Cys Lys Thr Thr Asp Thr Val Lys Gly
 310 315 320

GAA AGA GTC TCA TTC CCT GTA TGC ACC TAC GTC CCC TCA ACC ATC 1103
 Glu Arg Val Ser Phe Pro Val Cys Thr Tyr Val Pro Ser Thr Ile
 325 330 335

TGT GAT CAA ATG ACT GGC ATA CTA GCG ACC GAC GTC ACA CCG GAG 1148
 Cys Asp Gln Met Thr Gly Ile Leu Ala Thr Asp Val Thr Pro Glu
 340 345 350

GAC GCA CAG AAG TTG TTA GTG GGA TTG AAT CAG AGG ATA GTT GTG 1193
 Asp Ala Gln Lys Leu Leu Val Gly Leu Asn Gln Arg Ile Val Val
 355 360 365

AAC GGA AGA ACA CAG CGA AAC ACT AAC ACG ATG AAG AAC TAT CTG 1238
 Asn Gly Arg Thr Gln Arg Asn Thr Asn Thr Met Lys Asn Tyr Leu
 370 375 380

CTT CCG ATT GTG GCC GTC GCA TTT AGC AAG TGG GCG AGG GAA TAC 1283
 Leu Pro Ile Val Ala Val Ala Phe Ser Lys Trp Ala Arg Glu Tyr
 385 390 395

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Figure 5 (3)

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AAG GCA GAC CTT GAT GAT GAA AAA CCT CTG GGT GTC CGA GAG AGG 1328
 Lys Ala Asp Leu Asp Asp Glu Lys Pro Leu Gly Val Arg Glu Arg
 400 405 410

TCA CTT ACT TGC TGC TGC TTG TGG GCA TTT AAA ACG AGG AAG ATG 1373
 Ser Leu Thr Cys Cys Cys Leu Trp Ala Phe Lys Thr Arg Lys Met
 415 420 425

CAC ACC ATG TAC AAG AAA CCA GAC ACC CAG ACA ATA GTG AAG GTG 1418
 His Thr Met Tyr Lys Lys Pro Asp Thr Gln Thr Ile Val Lys Val
 430 435 440

CCT TCA GAG TTT AAC TCG TTC GTC ATC CCG AGC CTA TGG TCT ACA 1463
 Pro Ser Glu Phe Asn Ser Phe Val Ile Pro Ser Leu Trp Ser Thr
 445 450 455

GGC CTC GCA ATC CCA GTC AGA TCA CGC ATT AAG ATG CTT TTG GCC 1508
 Gly Leu Ala Ile Pro Val Arg Ser Arg Ile Lys Met Leu Leu Ala
 460 465 470

AAG AAG ACC AAG CGA GAG TTA ATA CCT GTT CTC GAC GCG TCG TCA 1553
 Lys Lys Thr Lys Arg Glu Leu Ile Pro Val Leu Asp Ala Ser Ser
 475 480 485

GCC AGG GAT GCT GAA CAA GAG GAG AAG GAG AGG TTG GAG GCC GAG 1598
 Ala Arg Asp Ala Glu Gln Glu Glu Lys Glu Arg Leu Glu Ala Glu
 490 495 500

CTG ACT AGA GAA GCC TTA CCA CCC CTC GTC CCC ATC GCG CCG GCG 1643
 Leu Thr Arg Glu Ala Leu Pro Pro Leu Val Pro Ile Ala Pro Ala
 505 510 515

GAG ACG GGA GTC GTC GAC GTC GAC GTT GAA GAA CTA GAG TAT CAC 1688
 Glu Thr Gly Val Val Asp Val Asp Val Glu Glu Leu Glu Tyr His
 520 525 530

GCA GGT GCA GGG GTC GTG GAA ACA CCT CGC AGC GCG TTG AAA GTC 1733
 Ala Gly Ala Gly Val Val Glu Thr Pro Arg Ser Ala Leu Lys Val
 535 540 545

ACC GCA CAG CCG AAC GAC GTA CTA CTA GGA AAT TAC GTA GTT CTG 1778
 Thr Ala Gln Pro Asn Asp Val Leu Leu Gly Asn Tyr Val Val Leu
 550 555 560

TCC CCG CAG ACC GTG CTC AAG AGC TCC AAG TTG GCC CCC GTG CAC 1823
 Ser Pro Gln Thr Val Leu Lys Ser Ser Lys Leu Ala Pro Val His
 565 570 575

CCT CTA GCA GAG CAG GTG AAA ATA ATA ACA CAT AAC GGG AGG GCC 1868
 Pro Leu Ala Glu Gln Val Lys Ile Ile Thr His Asn Gly Arg Ala
 580 585 590

GGC GGT TAC CAG GTC GAC GGA TAT GAC GGC AGG GTC CTA CTA CCA 1913
 Gly Gly Tyr Gln Val Asp Gly Tyr Asp Gly Arg Val Leu Leu Pro
 595 600 605

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Figure 5 (4)

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TGT GGA TCG GCC ATT CCG GTC CCT GAG TTT CAA GCT TTG AGC GAG 1958
 Cys Gly Ser Ala Ile Pro Val Pro Glu Phe Gln Ala Leu Ser Glu
 610 615 620

AGC GCC ACT ATG GTG TAC AAC GAA AGG GAG TTC GTC AAC AGG AAA 2003
 Ser Ala Thr Met Val Tyr Asn Glu Arg Glu Phe Val Asn Arg Lys
 625 630 635

CTA TAC CAT ATT GCC GTT CAC GGA CCG TCG CTG AAC ACC GAC GAG 2048
 Leu Tyr His Ile Ala Val His Gly Pro Ser Leu Asn Thr Asp Glu
 640 645 650

GAG AAC TAC GAG AAA GTC AGA GCT GAA AGA ACT GAC GCC GAG TAC 2093
 Glu Asn Tyr Glu Lys Val Arg Ala Glu Arg Thr Asp Ala Glu Tyr
 655 660 665

GTG TTC GAC GTA GAT AAA AAA TGC TGC GTC AAG AGA GAG GAA GCG 2138
 Val Phe Asp Val Asp Lys Lys Cys Cys Val Lys Arg Glu Glu Ala
 670 675 680

TCG GGT TTG GTG TTG GTG GGA GAG CTA ACC AAC CCC CCG TTC CAT 2183
 Ser Gly Leu Val Leu Val Gly Glu Leu Thr Asn Pro Pro Phe His
 685 690 695

GAA TTC GCC TAC GAA GGG CTG AAG ATC AGG CCG TCG GCA CCA TAT 2228
 Glu Phe Ala Tyr Glu Gly Leu Lys Ile Arg Pro Ser Ala Pro Tyr
 700 705 710

AAG ACT ACA GTA GTA GGA GTC TTT GGG GTT CCG GGA TCA GGC AAG 2273
 Lys Thr Thr Val Val Gly Val Phe Gly Val Pro Gly Ser Gly Lys
 715 720 725

TCT GCT ATT ATT AAG AGC CTC GTG ACC AAA CAC GAT CTG GTC ACC 2318
 Ser Ala Ile Ile Lys Ser Leu Val Thr Lys His Asp Leu Val Thr
 730 735 740

AGC GGC AAG AAG GAG AAC TGC CAG GAA ATA GTT AAC GAC GTG AAG 2363
 Ser Gly Lys Lys Glu Asn Cys Gln Glu Ile Val Asn Asp Val Lys
 745 750 755

AAG CAC CGC GGG AAG GGG ACA AGT AGG GAA AAC AGT GAC TCC ATC 2408
 Lys His Arg Gly Lys Gly Thr Ser Arg Glu Asn Ser Asp Ser Ile
 760 765 770

CTG CTA AAC GGG TGT CGT CGT GCC GTG GAC ATC CTA TAT GTG GAC 2453
 Leu Leu Asn Gly Cys Arg Arg Ala Val Asp Ile Leu Tyr Val Asp
 775 780 785

GAG GCT TTC GCT TGC CAT TCC GGT ACT CTG CTG GCC CTA ATT GCT 2498
 Glu Ala Phe Ala Cys His Ser Gly Thr Leu Leu Ala Leu Ile Ala
 790 795 800

CTT GTT AAA CCT CGG AGC AAA GTG GTG TTA TGC GGA GAC CCC AAG 2543
 Leu Val Lys Pro Arg Ser Lys Val Val Leu Cys Gly Asp Pro Lys
 805 810 815

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Figure 5 (5)

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CAA TGC GGA TTC TTC AAT ATG ATG CAG CTT AAG GTG AAC TTC AAC 2588
 Gln Cys Gly Phe Phe Asn Met Met Gln Leu Lys Val Asn Phe Asn
 820 825 830

CAC AAC ATC TGC ACT GAA GTA TGT CAT AAA AGT ATA TCC AGA CGT 2633
 His Asn Ile Cys Thr Glu Val Cys His Lys Ser Ile Ser Arg Arg
 835 840 845

TGC ACG CGT CCA GTC ACG GCC ATC GTG TCT ACG TTG CAC TAC GGA 2678
 Cys Thr Arg Pro Val Thr Ala Ile Val Ser Thr Leu His Tyr Gly
 850 855 860

GGC AAG ATG CGC ACG ACC AAC CCG TGC AAC AAA CCC ATA ATC ATA 2723
 Gly Lys Met Arg Thr Thr Asn Pro Cys Asn Lys Pro Ile Ile Ile
 865 870 875

GAC ACC ACA GGA CAG ACC AAG CCC AAG CCA GGA GAC ATC GTG TTA 2768
 Asp Thr Thr Gly Gln Thr Lys Pro Lys Pro Gly Asp Ile Val Leu
 880 885 890

ACA TGC TTC CGA GGC TGG GCA AAG CAG CTG CAG TTG GAC TAC CGT 2813
 Thr Cys Phe Arg Gly Trp Ala Lys Gln Leu Gln Leu Asp Tyr Arg
 895 900 905

GGA CAC GAA GTC ATG ACA GCA GCA GCA TCT CAG GGC CTC ACC CGC 2858
 Gly His Glu Val Met Thr Ala Ala Ala Ser Gln Gly Leu Thr Arg
 910 915 920

AAA GGG GTA TAC GCC GTA AGG CAG AAG GTG AAT GAA AAT CCC TTG 2903
 Lys Gly Val Tyr Ala Val Arg Gln Lys Val Asn Glu Asn Pro Leu
 925 930 935

TAT GCC CCT GCG TCG GAG CAC GTG AAT GTA CTG CTG ACG CGC ACT 2948
 Tyr Ala Pro Ala Ser Glu His Val Asn Val Leu Leu Thr Arg Thr
 940 945 950

GAG GAT AGG CTG GTG TGG AAA ACG CTG GCC GGC GAT CCC TGG ATT 2993
 Glu Asp Arg Leu Val Trp Lys Thr Leu Ala Gly Asp Pro Trp Ile
 955 960 965

AAG GTC CTA TCA AAC ATT CCA CAG GGT AAC TTT ACG GCC ACA TTG 3038
 Lys Val Leu Ser Asn Ile Pro Gln Gly Asn Phe Thr Ala Thr Leu
 970 975 980

GAA GAA TGG CAA GAA GAA CAC GAC AAA ATA ATG AAG GTG ATT GAA 3083
 Glu Glu Trp Gln Glu Glu His Asp Lys Ile Met Lys Val Ile Glu
 985 990 995

GGA CCG GCT GCG CCT GTG GAC GCG TTC CAG AAC AAA GCG AAC GTG 3128
 Gly Pro Ala Ala Pro Val Asp Ala Phe Gln Asn Lys Ala Asn Val
 1000 1005 1010

TGT TGG GCG AAA AGC CTG GTG CCT GTC CTG GAC ACT GCC GGA ATC 3173
 Cys Trp Ala Lys Ser Leu Val Pro Val Leu Asp Thr Ala Gly Ile
 1015 1020 1025

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T.00T.20" 90TT0660

Figure 5 (6)

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AGA TTG ACA GCA GAG GAG TGG AGC ACC ATA ATT ACA GCA TTT AAG 3218
 Arg Leu Thr Ala Glu Glu Trp Ser Thr Ile Ile Thr Ala Phe Lys
 1030 1035 1040

GAG GAC AGA GCT TAC TCT CCA GTG GTG GCC TTG AAT GAA ATT TGC 3263
 Glu Asp Arg Ala Tyr Ser Pro Val Val Ala Leu Asn Glu Ile Cys
 1045 1050 1055

ACC AAG TAC TAT GGA GTT GAC CTG GAC AGT GGC CTG TTT TCT GCC 3308
 Thr Lys Tyr Tyr Gly Val Asp Leu Asp Ser Gly Leu Phe Ser Ala
 1060 1065 1070

CCG AAG GTG TCC CTG TAT TAC GAG AAC AAC CAC TGG GAT AAC AGA 3353
 Pro Lys Val Ser Leu Tyr Tyr Glu Asn Asn His Trp Asp Asn Arg
 1075 1080 1085

CCT GGT GGA AGG ATG TAT GGA TTC AAT GCC GCA ACA GCT GCC AGG 3398
 Pro Gly Gly Arg Met Tyr Gly Phe Asn Ala Ala Thr Ala Ala Arg
 1090 1095 1100

CTG GAA GCT AGA CAT ACC TTC CTG AAG GGG CAG TGG CAT ACG GGC 3443
 Leu Glu Ala Arg His Thr Phe Leu Lys Gly Gln Trp His Thr Gly
 1105 1110 1115

AAG CAG GCA GTT ATC GCA GAA AGA AAA ATC CAA CCG CTT TCT GTG 3488
 Lys Gln Ala Val Ile Ala Glu Arg Lys Ile Gln Pro Leu Ser Val
 1120 1125 1130

CTG GAC AAT GTA ATT CCT ATC AAC CGC AGG CTG CCG CAC GCC CTG 3533
 Leu Asp Asn Val Ile Pro Ile Asn Arg Arg Leu Pro His Ala Leu
 1135 1140 1145

GTG GCT GAG TAC AAG ACG GTT AAA GGC AGT AGG GTT GAG TGG CTG 3578
 Val Ala Glu Tyr Lys Thr Val Lys Gly Ser Arg Val Glu Trp Leu
 1150 1155 1160

GTC AAT AAA GTA AGA GGG TAC CAC GTC CTG CTG GTG AGT GAG TAC 3623
 Val Asn Lys Val Arg Gly Tyr His Val Leu Leu Val Ser Glu Tyr
 1165 1170 1175

AAC CTG GCT TTG CCT CGA CGC AGG GTC ACT TGG TTG TCA CCG CTG 3668
 Asn Leu Ala Leu Pro Arg Arg Arg Val Thr Trp Leu Ser Pro Leu
 1180 1185 1190

AAT GTC ACA GGC GCC GAT AGG TGC TAC GAC CTA AGT TTA GGA CTG 3713
 Asn Val Thr Gly Ala Asp Arg Cys Tyr Asp Leu Ser Leu Gly Leu
 1195 1200 1205

CCG GCT GAC GCC GGC AGG TTC GAC TTG GTC TTT GTG AAC ATT CAC 3758
 Pro Ala Asp Ala Gly Arg Phe Asp Leu Val Phe Val Asn Ile His
 1210 1215 1220

ACG GAA TTC AGA ATC CAC CAC TAC CAG CAG TGT GTC GAC CAC GCC 3803
 Thr Glu Phe Arg Ile His His Tyr Gln Gln Cys Val Asp His Ala
 1225 1230 1235

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Figure 5 (7)

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ATG AAG CTG CAG ATG CTT GGG GGA GAT GCG CTA CGA CTG CTA AAA 3848
 Met Lys Leu Gln Met Leu Gly Gly Asp Ala Leu Arg Leu Leu Lys
 1240 1245 1250

CCC GGC GGC ATC TTG ATG AGA GCT TAC GGA TAC GCC GAT AAA ATC 3893
 Pro Gly Gly Ile Leu Met Arg Ala Tyr Gly Tyr Ala Asp Lys Ile
 1255 1260 1265

AGC GAA GCC GTT GTT TCC TCC TTA AGC AGA AAG TTC TCG TCT GCA 3938
 Ser Glu Ala Val Val Ser Ser Leu Ser Arg Lys Phe Ser Ser Ala
 1270 1275 1280

AGA GTG TTG CGC CCG GAT TGT GTC ACC AGC AAT ACA GAA GTG TTC 3983
 Arg Val Leu Arg Pro Asp Cys Val Thr Ser Asn Thr Glu Val Phe
 1285 1290 1295

TTG CTG TTC TCC AAC TTT GAC AAC GGA AAG AGA CCC TCT ACG CTA 4028
 Leu Leu Phe Ser Asn Phe Asp Asn Gly Lys Arg Pro Ser Thr Leu
 1300 1305 1310

CAC CAG ATG AAT ACC AAG CTG AGT GCC GTG TAT GCC GGA GAA GCC 4073
 His Gln Met Asn Thr Lys Leu Ser Ala Val Tyr Ala Gly Glu Ala
 1315 1320 1325

ATG CAC ACG GCC GGG TGT GCA CCA TCC TAC AGA GTT AAG AGA GCA 4118
 Met His Thr Ala Gly Cys Ala Pro Ser Tyr Arg Val Lys Arg Ala
 1330 1335 1340

GAC ATA GCC ACG TGC ACA GAA GCG GCT GTG GTT AAC GCA GCT AAC 4163
 Asp Ile Ala Thr Cys Thr Glu Ala Ala Val Val Asn Ala Ala Asn
 1345 1350 1355

GCC CGT GGA ACT GTA GGG GAT GGC GTA TGC AGG GCC GTG GCG AAG 4208
 Ala Arg Gly Thr Val Gly Asp Gly Val Cys Arg Ala Val Ala Lys
 1360 1365 1370

AAA TGG CCG TCA GCC TTT AAG GGA GCA GCA ACA CCA GTG GGC ACA 4253
 Lys Trp Pro Ser Ala Phe Lys Gly Ala Ala Thr Pro Val Gly Thr
 1375 1380 1385

ATT AAA ACA GTC ATG TGC GGC TCG TAC CCC GTC ATC CAC GCT GTA 4298
 Ile Lys Thr Val Met Cys Gly Ser Tyr Pro Val Ile His Ala Val
 1390 1395 1400

GCG CCT AAT TTC TCT GCC ACG ACT GAA GCG GAA GGG GAC CGC GAA 4343
 Ala Pro Asn Phe Ser Ala Thr Thr Glu Ala Glu Gly Asp Arg Glu
 1405 1410 1415

TTG GCC GCT GTC TAC CGG GCA GTG GCC GCC GAA GTA AAC AGA CTG 4388
 Leu Ala Ala Val Tyr Arg Ala Val Ala Ala Glu Val Asn Arg Leu
 1420 1425 1430

TCA CTG AGC AGC GTA GCC ATC CCG CTG CTG TCC ACA GGA GTG TTC 4433
 Ser Leu Ser Ser Val Ala Ile Pro Leu Leu Ser Thr Gly Val Phe
 1435 1440 1445

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FOOTNOTES

Figure 5 (8)

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AGC GGC GGA AGA GAT AGG CTG CAG CAA TCC CTC AAC CAT CTA TTC 4478
 Ser Gly Gly Arg Asp Arg Leu Gln Gln Ser Leu Asn His Leu Phe
 1450 1455 1460

ACA GCA ATG GAC GCC ACG GAC GCT GAC GTG ACC ATC TAC TGC AGA 4523
 Thr Ala Met Asp Ala Thr Asp Ala Asp Val Thr Ile Tyr Cys Arg
 1465 1470 1475

GAC AAA AGT TGG GAG AAG AAA ATC CAG GAA GCC ATT GAC ATG AGG 4568
 Asp Lys Ser Trp Glu Lys Lys Ile Gln Glu Ala Ile Asp Met Arg
 1480 1485 1490

ACG GCT GTG GAG TTG CTC AAT GAT GAC GTG GAG CTG ACC ACA GAC 4613
 Thr Ala Val Glu Leu Leu Asn Asp Asp Val Glu Leu Thr Thr Asp
 1495 1500 1505

TTG GTG AGA GTG CAC CCG GAC AGC AGC CTG GTG GGT CGT AAG GGC 4658
 Leu Val Arg Val His Pro Asp Ser Ser Leu Val Gly Arg Lys Gly
 1510 1515 1520

TAC AGT ACC ACT GAC GGG TCG CTG TAC TCG TAC TTT GAA GGT ACG 4703
 Tyr Ser Thr Thr Asp Gly Ser Leu Tyr Ser Tyr Phe Glu Gly Thr
 1525 1530 1535

AAA TTC AAC CAG GCT GCT ATT GAT ATG GCA GAG ATA CTG ACG TTG 4748
 Lys Phe Asn Gln Ala Ala Ile Asp Met Ala Glu Ile Leu Thr Leu
 1540 1545 1550

TGG CCC AGA CTG CAA GAG GCA AAC GAA CAG ATA TGC CTA TAC GCG 4793
 Trp Pro Arg Leu Gln Glu Ala Asn Glu Gln Ile Cys Leu Tyr Ala
 1555 1560 1565

CTG GGC GAA ACA ATG GAC AAC ATC AGA TCC AAA TGT CCG GTG AAC 4838
 Leu Gly Glu Thr Met Asp Asn Ile Arg Ser Lys Cys Pro Val Asn
 1570 1757 1580

GAT TCC GAT TCA TCA ACA CCT CCC AGG ACA GTG CCC TGC CTG TGC 4883
 Asp Ser Asp Ser Ser Thr Pro Pro Arg Thr Val Pro Cys Leu Cys
 1585 1590 1595

CGC TAC GCA ATG ACA GCA GAA CGG ATC GCC CGC CTT AGG TCA CAC 4928
 Arg Tyr Ala Met Thr Ala Glu Arg Ile Ala Arg Leu Arg Ser His
 1600 1605 1610

CAA GTT AAA AGC ATG GTG GTT TGC TCA TCT TTT CCC CTC CCG AAA 4973
 Gln Val Lys Ser Met Val Val Cys Ser Ser Phe Pro Leu Pro Lys
 1615 1620 1625

TAC CAT GTA GAT GGG GTG CAG AAG GTA AAG TGC GAG AAG GTT CTC 5018
 Tyr His Val Asp Gly Val Gln Lys Val Lys Cys Glu Lys Val Leu
 1630 1635 1640

CTG TTC GAC CCG ACG GTA CCT TCA GTG GTT AGT CCG CGG AAG TAT 5063
 Leu Phe Asp Pro Thr Val Pro Ser Val Val Ser Pro Arg Lys Tyr
 1645 1650 1655

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Figure 5 (9)

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GCC GCA TCT ACG ACG GAC CAC TCA GAT CGG TCG TTA CGA GGG TTT 5108
 Ala Ala Ser Thr Thr Asp His Ser Asp Arg Ser Leu Arg Gly Phe
 1660 1665 1670

GAC TTG GAC TGG ACC ACC GAC TCG TCT TCC ACT GCC AGC GAT ACC 5153
 Asp Leu Asp Trp Thr Thr Asp Ser Ser Ser Thr Ala Ser Asp Thr
 1675 1680 1685

ATG TCG CTA CCC AGT TTG CAG TCG TGT GAC ATC GAC TCG ATC TAC 5198
 Met Ser Leu Pro Ser Leu Gln Ser Cys Asp Ile Asp Ser Ile Tyr
 1690 1695 1700

GAG CCA ATG GCT CCC ATA GTA GTG ACG GCT GAC GTA CAC CCT GAA 5243
 Glu Pro Met Ala Pro Ile Val Val Thr Ala Asp Val His Pro Glu
 1705 1710 1715

CCC GCA GGC ATC GCG GAC CTG GCG GCA GAT GTG CAC CCT GAA CCC 5288
 Pro Ala Gly Ile Ala Asp Leu Ala Ala Asp Val His Pro Glu Pro
 1720 1725 1730

GCA GAC CAT GTG GAC CTC GAG AAC CCG ATT CCT CCA CCG CGC CCG 5333
 Ala Asp His Val Asp Leu Glu Asn Pro Ile Pro Pro Pro Arg Pro
 1735 1740 1745

AAG AGA GCT GCA TAC CTT GCC TCC CGC GCG GCG GAG CGA CCG GTG 5378
 Lys Arg Ala Ala Tyr Leu Ala Ser Arg Ala Ala Glu Arg Pro Val
 1750 1755 1760

CCG GCG CCG AGA AAG CCG ACG CCT GCC CCA AGG ACT GCG TTT AGG 5423
 Pro Ala Pro Arg Lys Pro Thr Pro Ala Pro Arg Thr Ala Phe Arg
 1765 1770 1775

AAC AAG CTG CCT TTG ACG TTC GGC GAC TTT GAC GAG CAC GAG GTC 5468
 Asn Lys Leu Pro Leu Thr Phe Gly Asp Phe Asp Glu His Glu Val
 1780 1785 1790

GAT GCG TTG GCC TCC GGG ATT ACT TTC GGA GAC TTC GAC GAC GTC 5513
 Asp Ala Leu Ala Ser Gly Ile Thr Phe Gly Asp Phe Asp Asp Val
 1795 1800 1805

CTG CGA CTA GGC CGC GCG GGT GCA TAT ATT TTC TCC TCG GAC ACT 5558
 Leu Arg Leu Gly Arg Ala Gly Ala Tyr Ile Phe Ser Ser Asp Thr
 1810 1815 1820

GGC AGC GGA CAT TTA CAA CAA AAA TCC GTT AGG CAG CAC AAT CTC 5603
 Gly Ser Gly His Leu Gln Gln Lys Ser Val Arg Gln His Asn Leu
 1825 1830 1835

CAG TGC GCA CAA CTG GAT GCG GTC CAG GAG GAG AAA ATG TAC CCG 5648
 Gln Cys Ala Gln Leu Asp Ala Val Gln Glu Glu Lys Met Tyr Pro
 1840 1845 1850

CCA AAA TTG GAT ACT GAG AGG GAG AAG CTG TTG CTG CTG AAA ATG 5693
 Pro Lys Leu Asp Thr Glu Arg Glu Lys Leu Leu Leu Leu Lys Met
 1855 1860 1865

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Figure 5 (10)

14/33

CAG ATG CAC CCA TCG GAG GCT AAT AAG AGT CGA TAC CAG TCT CGC 5738
 Gln Met His Pro Ser Glu Ala Asn Lys Ser Arg Tyr Gln Ser Arg
 1870 1875 1880

AAA GTG GAG AAC ATG AAA GCC ACG GTG GTG GAC AGG CTC ACA TCG 5783
 Lys Val Glu Asn Met Lys Ala Thr Val Val Asp Arg Leu Thr Ser
 1885 1890 1895

GGG GCC AGA TTG TAC ACG GGA GCG GAC GTA GGC CGC ATA CCA ACA 5828
 Gly Ala Arg Leu Tyr Thr Gly Ala Asp Val Gly Arg Ile Pro Thr
 1900 1905 1910

TAC GCG GTT CGG TAC CCC CGC CCC GTG TAC TCC CCT ACC GTG ATC 5873
 Tyr Ala Val Arg Tyr Pro Arg Pro Val Tyr Ser Pro Thr Val Ile
 1915 1920 1925

GAA AGA TTC TCA AGC CCC GAT GTA GCA ATC GCA GCG TGC AAC GAA 5918
 Glu Arg Phe Ser Ser Pro Asp Val Ala Ile Ala Ala Cys Asn Glu
 1930 1935 1940

TAC CTA TCC AGA AAT TAC CCA ACA GTG GCG TCG TAC CAG ATA ACA 5963
 Tyr Leu Ser Arg Asn Tyr Pro Thr Val Ala Ser Tyr Gln Ile Thr
 1945 1950 1955

GAT GAA TAC GAC GCA TAC TTG GAC ATG GTT GAC GGG TCG GAT AGT 6008
 Asp Glu Tyr Asp Ala-Tyr Leu Asp Met Val Asp Gly Ser Asp Ser
 1960 1965 1970

TGC TTG GAC AGA GCG ACA TTC TGC CCG GCG AAG CTC CGG TGC TAC 6053
 Cys Leu Asp Arg Ala Thr Phe Cys Pro Ala Lys Leu Arg Cys Tyr
 1975 1980 1985

CCG AAA CAT CAT GCG TAC CAC CAG CCG ACT GTA CGC AGT GCC GTC 6098
 Pro Lys His His Ala Tyr His Gln Pro Thr Val Arg Ser Ala Val
 1990 1995 2000

CCG TCA CCC TTT CAG AAC ACA CTA CAG AAC GTG CTA GCG GCC GCC 6143
 Pro Ser Pro Phe Gln Asn Thr Leu Gln Asn Val Leu Ala Ala Ala
 2005 2010 2015

ACC AAG AGA AAC TGC AAC GTC ACG CAA ATG CGA GAA CTA CCC ACC 6188
 Thr Lys Arg Asn Cys Asn Val Thr Gln Met Arg Glu Leu Pro Thr
 2020 2025 2030

ATG GAC TCG GCA GTG TTC AAC GTG GAG TGC TTC AAG CGC TAT GCC 6233
 Met Asp Ser Ala Val Phe Asn Val Glu Cys Phe Lys Arg Tyr Ala
 2035 2040 2045

TGC TCC GGA GAA TAT TGG GAA GAA TAT GCT AAA CAA CCT ATC CGG 6278
 Cys Ser Gly Glu Tyr Trp Glu Glu Tyr Ala Lys Gln Pro Ile Arg
 2050 2055 2060

ATA ACC ACT GAG AAC ATC ACT ACC TAT GTG ACC AAA TTG AAA GGC 6323
 Ile Thr Thr Glu Asn Ile Thr Thr Tyr Val Thr Lys Leu Lys Gly
 2065 2070 2075

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Figure 5 (11)

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CCG AAA GCT GCT GCC TTG TTC GCT AAG ACC CAC AAC TTG GTT CCG 6368
Pro Lys Ala Ala Ala Leu Phe Ala Lys Thr His Asn Leu Val Pro
2080 2085 2090

CTG CAG GAG GTT CCC ATG GAC AGA TTC ACG GTC GAC ATG AAA CGA 6413
Leu Gln Glu Val Pro Met Asp Arg Phe Thr Val Asp Met Lys Arg
2095 2100 2105

GAT GTC AAA GTC ACT CCA GGG ACG AAA CAC ACA GAG GAA AGA CCC 6458
Asp Val Lys Val Thr Pro Gly Thr Lys His Thr Glu Glu Arg Pro
2110 2115 2120

AAA GTC CAG GTA ATT CAA GCA GCG GAG CCA TTG GCG ACC GCT TAC 6503
Lys Val Gln Val Ile Gln Ala Ala Glu Pro Leu Ala Thr Ala Tyr
2125 2130 2135

CTG TGC GGC ATC CAC AGG GAA TTA GTA AGG AGA CTA AAT GCT GTG 6548
Leu Cys Gly Ile His Arg Glu Leu Val Arg Arg Leu Asn Ala Val
2140 2145 2150

TTA CGC CCT AAC GTG CAC ACA TTG TTT GAT ATG TCG GCC GAA GAC 6593
Leu Arg Pro Asn Val His Thr Leu Phe Asp Met Ser Ala Glu Asp
2155 2160 2165

TTT GAC GCG ATC ATC GCC TCT CAC TTC CAC CCA GGA GAC CCG GTT 6638
Phe Asp Ala Ile Ile Ala Ser His Phe His Pro Gly Asp Pro Val
2170 2175 2180

CTA GAG ACG GAC ATT GCA TCA TTC GAC AAA AGC CAG GAC GAC TCC 6683
Leu Glu Thr Asp Ile Ala Ser Phe Asp Lys Ser Gln Asp Asp Ser
2185 2190 2195

TTG GCT CTT ACA GGT TTA ATG ATC CTC GAA GAT CTA GGG GTG GAT 6728
Leu Ala Leu Thr Gly Leu Met Ile Leu Glu Asp Leu Gly Val Asp
2200 2205 2210

CAG TAC CTG CTG GAC TTG ATC GAG GCA GCC TTT GGG GAA ATA TCC 6773
Gln Tyr Leu Leu Asp Leu Ile Glu Ala Ala Phe Gly Glu Ile Ser
2215 2220 2225

AGC TGT CAC CTA CCA ACT GGC ACG CGC TTC AAG TTC GGA GCT ATG 6818
Ser Cys His Leu Pro Thr Gly Thr Arg Phe Lys Phe Gly Ala Met
2230 2235 2240

ATG AAA TCG GGC ATG TTT CTG ACT TTG TTT ATT AAC ACT GTT TTG 6863
Met Lys Ser Gly Met Phe Leu Thr Leu Phe Ile Asn Thr Val Leu
2245 2250 2255

AAC ATC ACC ATA GCA AGC AGG GTA CTG GAG CAG AGA CTC ACT GAC 6908
Asn Ile Thr Ile Ala Ser Arg Val Leu Glu Gln Arg Leu Thr Asp
2260 2265 2270

TCC GCC TGT GCG GCC TTC ATC GGC GAC GAC AAC ATC GTT CAC GGA 6953
Ser Ala Cys Ala Ala Phe Ile Gly Asp Asp Asn Ile Val His Gly
2275 2280 2285

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Figure 5 (12)

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GTG ATC TCC GAC AAG CTG ATG GCG GAG AGG TGC GCG TCG TGG GTC 6998
 Val Ile Ser Asp Lys Leu Met Ala Glu Arg Cys Ala Ser Trp Val
 2290 2295 2300

AAC ATG GAG GTG AAG ATC ATT GAC GCT GTC ATG GGC GAA AAA CCC 7043
 Asn Met Glu Val Lys Ile Ile Asp Ala Val Met Gly Glu Lys Pro
 2305 2310 2315

CCA TAT TTT TGT GGG GGA TTC ATA GTT TTT GAC AGC GTC ACA CAG 7088
 Pro Tyr Phe Cys Gly Gly Phe Ile Val Phe Asp Ser Val Thr Gln
 2320 2325 2330

ACC GCC TGC CGT GTT TCA GAC CCA CTT AAG CGC CTG TTC AAG TTG 7133
 Thr Ala Cys Arg Val Ser Asp Pro Leu Lys Arg Leu Phe Lys Leu
 2335 2340 2345

GGT AAG CCG CTA ACA GCT GAA GAC AAG CAG GAC GAA GAC AGG CGA 7178
 Gly Lys Pro Leu Thr Ala Glu Asp Lys Gln Asp Glu Asp Arg Arg
 2350 2355 2360

CGA GCA CTG AGT GAC GAG GTT AGC AAG TGG TTC CGG ACA GGC TTG 7223
 Arg Ala Leu Ser Asp Glu Val Ser Lys Trp Phe Arg Thr Gly Leu
 2365 2370 2375

GGG GCC GAA CTG GAG GTG GCA CTA ACA TCT AGG TAT GAG GTA GAG 7268
 Gly Ala Glu Leu Glu Val Ala Leu Thr Ser Arg Tyr Glu Val Glu
 2380 2385 2390

GGC TGC AAA AGT ATC CTC ATA GCC ATG ACC ACC TTG GCG AGG GAC 7313
 Gly Cys Lys Ser Ile Leu Ile Ala Met Thr Thr Leu Ala Arg Asp
 2395 2400 2405

ATT AAG GCG TTT AAG AAA TTG AGA GGA CCT GTT ATA CAC CTC TAC 7358
 Ile Lys Ala Phe Lys Lys Leu Arg Gly Pro Val Ile His Leu Tyr
 2410 2415 2420

GGC GGT CCT AGA TTG GTG CGT TAA TACACAGAAT TCTGATTATA GCGCACTATT 7412
 Gly Gly Pro Arg Leu Val Arg
 2425 2430

ATAGCACC ATG AAT TAC ATC CCT ACG CAA ACG TTT TAC GGC CGC CGG 7459
 Met Asn Tyr Ile Pro Thr Gln Thr Phe Tyr Gly Arg Arg
 5 10

TGG CGC CCG CGC CCG GCG GCC CGT CCT TGG CCG TTG CAG GCC ACT 7504
 Trp Arg Pro Arg Pro Ala Ala Arg Pro Trp Pro Leu Gln Ala Thr
 15 20 25

CCG GTG GCT CCC GTC GTC CCC GAC TTC CAG GCC CAG CAG ATG CAG 7549
 Pro Val Ala Pro Val Val Pro Asp Phe Gln Ala Gln Gln Met Gln
 30 35 40

CAA CTC ATC AGC GCC GTA AAT GCG CTG ACA ATG AGA CAG AAC GCA 7594
 Gln Leu Ile Ser Ala Val Asn Ala Leu Thr Met Arg Gln Asn Ala
 45 50 55

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Figure 5 (13)

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ATT GCT CCT GCT AGG CCT CCC AAA CCA AAG AAG AAG AAG ACA ACC 7639
 Ile Ala Pro Ala Arg Pro Pro Lys Pro Lys Lys Lys Lys Thr Thr
 60 65 70

AAA CCA AAG CCG AAA ACG CAG CCC AAG AAG ATC AAC GGA AAA ACG 7684
 Lys Pro Lys Pro Lys Thr Gln Pro Lys Lys Ile Asn Gly Lys Thr
 75 80 85

CAG CAG CAA AAG AAG AAA GAC AAG CAA GCC GAC AAG AAG AAG AAG 7729
 Gln Gln Gln Lys Lys Lys Asp Lys Gln Ala Asp Lys Lys Lys Lys
 90 95 100

AAA CCC GGA AAA AGA GAA AGA ATG TGC ATG AAG ATT GAA AAT GAC 7774
 Lys Pro Gly Lys Arg Glu Arg Met Cys Met Lys Ile Glu Asn Asp
 105 110 115

TGT ATC TTC GAA GTC AAA CAC GAA GGA AAG GTC ACT GGG TAC GCC 7819
 Cys Ile Phe Glu Val Lys His Glu Gly Lys Val Thr Gly Tyr Ala
 120 125 130

TGC CTG GTG GGC GAC AAA GTC ATG AAA CCT GCC CAC GTG AAA GGA 7864
 Cys Leu Val Gly Asp Lys Val Met Lys Pro Ala His Val Lys Gly
 135 140 145

GTC ATC GAC AAC GCG GAC CTG GCA AAG CTA GCT TTC AAG AAA TCG 7909
 Val Ile Asp Asn Ala Asp Leu Ala Lys Leu Ala Phe Lys Lys Ser
 150 155 160

AGC AAG TAT GAC CTT GAG TGT GCC CAG ATA CCA GTT CAC ATG AGG 7954
 Ser Lys Tyr Asp Leu Glu Cys Ala Gln Ile Pro Val His Met Arg
 165 170 175

TCG GAT GCC TCA AAG TAC ACG CAT GAG AAG CCC GAG GGA CAC TAT 7999
 Ser Asp Ala Ser Lys Tyr Thr His Glu Lys Pro Glu Gly His Tyr
 180 185 190

AAC TGG CAC CAC GGG GCT GTT CAG TAC AGC GGA GGT AGG TTC ACT 8044
 Asn Trp His His Gly Ala Val Gln Tyr Ser Gly Gly Arg Phe Thr
 195 200 205

ATA CCG ACA GGA GCG GGC AAA CCG GGA GAC AGT GGC CGG CCC ATC 8089
 Ile Pro Thr Gly Ala Gly Lys Pro Gly Asp Ser Gly Arg Pro Ile
 210 215 220

TTT GAC AAC AAG GGG AGG GTA GTC GCT ATC GTC CTG GGC GGG GCC 8134
 Phe Asp Asn Lys Gly Arg Val Val Ala Ile Val Leu Gly Gly Ala
 225 230 235

AAC GAG GGC TCA CGC ACA GCA CTG TCG GTG GTC ACC TGG AAC AAA 8179
 Asn Glu Gly Ser Arg Thr Ala Leu Ser Val Val Thr Trp Asn Lys
 240 245 250

GAT ATG GTG ACT AGA GTG ACC CCC GAG GGG TCC GAA GAG TGG TCC 8224
 Asp Met Val Thr Arg Val Thr Pro Glu Gly Ser Glu Glu Trp Ser
 255 260 265

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Figure 5 (14)

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GCC	CCG	CTG	ATT	ACT	GCC	ATG	TGT	GTC	CTT	GCC	AAT	GCT	ACC	TTC	8269
Ala	Pro	Leu	Ile	Thr	Ala	Met	Cys	Val	Leu	Ala	Asn	Ala	Thr	Phe	
270						275					280				
CCG	TGC	TTC	CAG	CCC	CCG	TGT	GTA	CCT	TGC	TGC	TAT	GAA	AAC	AAC	8314
Pro	Cys	Phe	Gln	Pro	Pro	Cys	Val	Pro	Cys	Cys	Tyr	Glu	Asn	Asn	
285						290					295				
GCA	GAG	GCC	ACA	CTA	CGG	ATG	CTC	GAG	GAT	AAC	GTG	GAT	AGG	CCA	8359
Ala	Glu	Ala	Thr	Leu	Arg	Met	Leu	Glu	Asp	Asn	Val	Asp	Arg	Pro	
300						305					310				
GGG	TAC	TAC	GAC	CTC	CTT	CAG	GCA	GCC	TTG	ACG	TGC	CGA	AAC	GGA	8404
Gly	Tyr	Tyr	Asp	Leu	Leu	Gln	Ala	Ala	Leu	Thr	Cys	Arg	Asn	Gly	
315						320					325				
ACA	AGA	CAC	CGG	CGC	AGC	GTG	TCG	CAA	CAC	TTC	AAC	GTG	TAT	AAG	8449
Thr	Arg	His	Arg	Arg	Ser	Val	Ser	Gln	His	Phe	Asn	Val	Tyr	Lys	
330						335					340				
GCT	ACA	CGC	CCT	TAC	ATC	GCG	TAC	TGC	GCC	GAC	TGC	GGA	GCA	GGG	8494
Ala	Thr	Arg	Pro	Tyr	Ile	Ala	Tyr	Cys	Ala	Asp	Cys	Gly	Ala	Gly	
345						350					355				
CAC	TCG	TGT	CAT	AGC	CCC	GTA	GCA	ATT	GAA	GCG	GTC	AGG	TCC	GAA	8539
His	Ser	Cys	His	Ser	Pro	Val	Ala	Ile	Glu	Ala	Val	Arg	Ser	Glu	
360						365					370				
GCT	ACC	GAC	GGG	ATG	CTG	AAG	ATT	CAG	TTC	TCG	GCA	CAA	ATT	GGC	8584
Ala	Thr	Asp	Gly	Met	Leu	Lys	Ile	Gln	Phe	Ser	Ala	Gln	Ile	Gly	
375						380					385				
ATA	GAT	AAG	AGT	GAC	AAT	CAT	GAC	TAC	ACG	AAG	ATA	AGG	TAC	GCA	8629
Ile	Asp	Lys	Ser	Asp	Asn	His	Asp	Tyr	Thr	Lys	Ile	Arg	Tyr	Ala	
390						395					400				
GAC	GGG	CAC	GCC	ATT	GAG	AAT	GCC	GTC	CGG	TCA	TCT	TTG	AAG	GTA	8674
Asp	Gly	His	Ala	Ile	Glu	Asn	Ala	Val	Arg	Ser	Ser	Leu	Lys	Val	
405						410					415				
GCC	ACC	TCC	GGA	GAC	TGT	TTC	GTC	CAT	GGC	ACA	ATG	GGA	CAT	TTC	8719
Ala	Thr	Ser	Gly	Asp	Cys	Phe	Val	His	Gly	Thr	Met	Gly	His	Phe	
420						425					430				
ATA	CTG	GCA	AAG	TGC	CCA	CCG	GGT	GAA	TTC	CTG	CAG	GTC	TCG	ATC	8764
Ile	Leu	Ala	Lys	Cys	Pro	Pro	Gly	Glu	Phe	Leu	Gln	Val	Ser	Ile	
435						440					445				
CAG	GAC	ACC	AGA	AAC	GCG	GTC	CGT	GCC	TGC	AGA	ATA	CAA	TAT	CAT	8809
Gln	Asp	Thr	Arg	Asn	Ala	Val	Arg	Ala	Cys	Arg	Ile	Gln	Tyr	His	
450						455					460				
CAT	GAC	CCT	CAA	CCG	GTG	GGT	AGA	GAA	AAA	TTT	ACA	ATT	AGA	CCA	8854
His	Asp	Pro	Gln	Pro	Val	Gly	Arg	Glu	Lys	Phe	Thr	Ile	Arg	Pro	
465						470					475				

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Figure 5 (15)

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CAC TAT GGA AAA GAG ATC CCT TGC ACC ACT TAT CAA CAG ACC ACA 8899
His Tyr Gly Lys Glu Ile Pro Cys Thr Thr Tyr Gln Gln Thr Thr
480 485 490

GCG AAG ACC GTG GAG GAA ATC GAC ATG CAT ATG CCG CCA GAT ACG 8944
Ala Lys Thr Val Glu Glu Ile Asp Met His Met Pro Pro Asp Thr
495 500 505

CCG GAC AGG ACG TTG CTA TCA CAG CAA TCT GGC AAT GTA AAG ATC 8989
Pro Asp Arg Thr Leu Leu Ser Gln Gln Ser Gly Asn Val Lys Ile
510 515 520

ACA GTC GGA GGA AAG AAG GTG AAA TAC AAC TGC ACC TGT GGA ACC 9034
Thr Val Gly Gly Lys Lys Val Lys Tyr Asn Cys Thr Cys Gly Thr
525 530 535

GGA AAC GTT GGC ACT ACT AAT TCG GAC ATG ACG ATC AAC ACG TGT 9079
Gly Asn Val Gly Thr Thr Asn Ser Asp Met Thr Ile Asn Thr Cys
540 545 550

CTA ATA GAG CAG TGC CAC GTC TCA GTG ACG GAC CAT AAG AAA TGG 9124
Leu Ile Glu Gln Cys His Val Ser Val Thr Asp His Lys Lys Trp
555 560 565

CAG TTC AAC TCA CCT TTC GTC CCG AGA GCC GAC GAA CCG GCT AGA 9169
Gln Phe Asn Ser Pro Phe Val Pro Arg Ala Asp Glu Pro Ala Arg
570 575 580

AAA GGC AAA GTC CAT ATC CCA TTC CCG TTG GAC AAC ATC ACA TGC 9214
Lys Gly Lys Val His Ile Pro Phe Pro Leu Asp Asn Ile Thr Cys
585 590 595

AGA GTT CCA ATG GCG CGC GAA CCA ACC GTC ATC CAC GGC AAA AGA 9259
Arg Val Pro Met Ala Arg Glu Pro Thr Val Ile His Gly Lys Arg
600 605 610

GAA GTG ACA CTG CAC CTT CAC CCA GAT CAT CCC ACG CTC TTT TCC 9304
Glu Val Thr Leu His Leu His Pro Asp His Pro Thr Leu Phe Ser
615 620 625

TAC CGC ACA CTG GGT GAG GAC CCG CAG TAT CAC GAG GAA TGG GTG 9349
Tyr Arg Thr Leu Gly Glu Asp Pro Gln Tyr His Glu Glu Trp Val
630 635 640

ACA GCG GCG GTG GAA CGG ACC ATA CCC GTA CCA GTG GAC GGG ATG 9394
Thr Ala Ala Val Glu Arg Thr Ile Pro Val Pro Val Asp Gly Met
645 650 655

GAG TAC CAC TGG GGA AAC AAC GAC CCA GTG AGG CTT TGG TCT CAA 9439
Glu Tyr His Trp Gly Asn Asn Asp Pro Val Arg Leu Trp Ser Gln
660 665 670

CTC ACC ACT GAA GGG AAA CCG CAC GGC TGG CCG CAT CAG ATC GTA 9484
Leu Thr Thr Glu Gly Lys Pro His Gly Trp Pro His Gln Ile Val
675 680 685

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Figure 5 (16)

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CAG	TAC	TAC	TAT	GGG	CTT	TAC	CCG	GCC	GCT	ACA	GTA	TCC	GCG	GTC	9529
Gln	Tyr	Tyr	Tyr	Gly	Leu	Tyr	Pro	Ala	Ala	Thr	Val	Ser	Ala	Val	
690						695					700				
GTC	GGG	ATG	AGC	TTA	CTG	GCG	TTG	ATA	TCG	ATC	TTC	GCG	TCG	TGC	9574
Val	Gly	Met	Ser	Leu	Leu	Ala	Leu	Ile	Ser	Ile	Phe	Ala	Ser	Cys	
705						710					715				
TAC	ATG	CTG	GTT	GCG	GCC	CGC	AGT	AAG	TGC	TTG	ACC	CCT	TAT	GCT	9619
Tyr	Met	Leu	Val	Ala	Ala	Arg	Ser	Lys	Cys	Leu	Thr	Pro	Tyr	Ala	
720						725					730				
TTA	ACA	CCA	GGA	GCT	GCA	GTT	CCG	TGG	ACG	CTG	GGG	ATA	CTC	TGC	9664
Leu	Thr	Pro	Gly	Ala	Ala	Val	Pro	Trp	Thr	Leu	Gly	Ile	Leu	Cys	
735						740					745				
TGC	GCC	CCG	CGG	GCG	CAC	GCA	GCT	AGT	GTG	GCA	GAG	ACT	ATG	GCC	9709
Cys	Ala	Pro	Arg	Ala	His	Ala	Ala	Ser	Val	Ala	Glu	Thr	Met	Ala	
750						755					760				
TAC	TTG	TGG	GAC	CAA	AAC	CAA	GCG	TTG	TTC	TGG	TTG	GAG	TTT	GCG	9754
Tyr	Leu	Trp	Asp	Gln	Asn	Gln	Ala	Leu	Phe	Trp	Leu	Glu	Phe	Ala	
765						770					775				
GCC	CCT	GTT	GCC	TGC	ATC	CTC	ATC	ATC	ACG	TAT	TGC	CTC	AGA	AAC	9799
Ala	Pro	Val	Ala	Cys	Ile	Leu	Ile	Ile	Thr	Tyr	Cys	Leu	Arg	Asn	
780						785					790				
GTG	CTG	TGT	TGC	TGT	AAG	AGC	CTT	TCT	TTT	TTA	GTG	CTA	CTG	AGC	9844
Val	Leu	Cys	Cys	Cys	Lys	Ser	Leu	Ser	Phe	Leu	Val	Leu	Leu	Ser	
795						800					805				
CTC	GGG	GCA	ACC	GCC	AGA	GCT	TAC	GAA	CAT	TCG	ACA	GTA	ATG	CCG	9889
Leu	Gly	Ala	Thr	Ala	Arg	Ala	Tyr	Glu	His	Ser	Thr	Val	Met	Pro	
810						815					820				
AAC	GTG	GTG	GGG	TTC	CCG	TAT	AAG	GCT	CAC	ATT	GAA	AGG	CCA	GGA	9934
Asn	Val	Val	Gly	Phe	Pro	Tyr	Lys	Ala	His	Ile	Glu	Arg	Pro	Gly	
825						830					835				
TAT	AGC	CCC	CTC	ACT	TTG	CAG	ATG	CAG	GTT	GTT	GAA	ACC	AGC	CTC	9979
Tyr	Ser	Pro	Leu	Thr	Leu	Gln	Met	Gln	Val	Val	Glu	Thr	Ser	Leu	
840						845					850				
GAA	CCA	ACC	CTT	AAT	TTG	GAA	TAC	ATA	ACC	TGT	GAG	TAC	AAG	ACG	10024
Glu	Pro	Thr	Leu	Asn	Leu	Glu	Tyr	Ile	Thr	Cys	Glu	Tyr	Lys	Thr	
855						860					865				
GTC	GTC	CCG	TCG	CCG	TAC	GTG	AAG	TGC	TGC	GGC	GCC	TCA	GAG	TGC	10069
Val	Val	Pro	Ser	Pro	Tyr	Val	Lys	Cys	Cys	Gly	Ala	Ser	Glu	Cys	
870						875					880				
TCC	ACT	AAA	GAG	AAG	CCT	GAC	TAC	CAA	TGC	AAG	GTT	TAC	ACA	GGC	10114
Ser	Thr	Lys	Glu	Lys	Pro	Asp	Tyr	Gln	Cys	Lys	Val	Tyr	Thr	Gly	
885						890					895				

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Figure 5 (17)

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GTG TAC CCG TTC ATG TGG GGA GGG GCA TAT TGC TTC TGC GAC TCA 10159
Val Tyr Pro Phe Met Trp Gly Gly Ala Tyr Cys Phe Cys Asp Ser
900 905 910

GAA AAC ACG CAA CTC AGC GAG GCG TAC GTC GAT CGA TCG GAC GTA 10204
Glu Asn Thr Gln Leu Ser Glu Ala Tyr Val Asp Arg Ser Asp Val
915 920 925

TGC AGG CAT GAT CAC GCA TCT GCT TAC AAA GCC CAT ACA GCA TCG 10249
Cys Arg His Asp His Ala Ser Ala Tyr Lys Ala His Thr Ala Ser
930 935 940

CTG AAG GCC AAA GTG AGG GTT ATG TAC GGC AAC GTA AAC CAG ACT 10294
Leu Lys Ala Lys Val Arg Val Met Tyr Gly Asn Val Asn Gln Thr
945 950 955

GTG GAT GTT TAC GTG AAC GGA GAC CAT GCC GTC ACG ATA GGG GGT 10339
Val Asp Val Tyr Val Asn Gly Asp His Ala Val Thr Ile Gly Gly
960 965 970

ACT CAG TTC ATA TTC GGG CCG CTG TCA TCG GCC TGG ACC CCG TTC 10384
Thr Gln Phe Ile Phe Gly Pro Leu Ser Ser Ala Trp Thr Pro Phe
975 980 985

GAC AAC AAG ATA GTC GTG TAC AAA GAC GAA GTG TTC AAT CAG GAC 10429
Asp Asn Lys Ile Val Val Tyr Lys Asp Glu Val Phe Asn Gln Asp
990 995 1000

TTC CCG CCG TAC GGA TCT GGG CAA CCA GGG CGC TTC GGC GAC ATC 10474
Phe Pro Pro Tyr Gly Ser Gly Gln Pro Gly Arg Phe Gly Asp Ile
1005 1010 1015

CAA AGC AGA ACA GTG GAG AGT AAC GAC CTG TAC GCG AAC ACG GCA 10519
Gln Ser Arg Thr Val Glu Ser Asn Asp Leu Tyr Ala Asn Thr Ala
1020 1025 1030

CTG AAG CTG GCA CGC CCT TCA CCC GGC ATG GTC CAT GTA CCG TAC 10564
Leu Lys Leu Ala Arg Pro Ser Pro Gly Met Val His Val Pro Tyr
1035 1040 1045

ACA CAG ACA CCT TCA GGG TTC AAA TAT TGG CTA AAG GAA AAA GGG 10609
Thr Gln Thr Pro Ser Gly Phe Lys Tyr Trp Leu Lys Glu Lys Gly
1050 1055 1060

ACA GCC CTA AAT ACG AAG GCT CCT TTT GGC TGC CAA ATC AAA ACG 10654
Thr Ala Leu Asn Thr Lys Ala Pro Phe Gly Cys Gln Ile Lys Thr
1065 1070 1075

AAC CCT GTC AGG GCC ATG AAC TGC GCC GTG GGA AAC ATC CCT GTC 10699
Asn Pro Val Arg Ala Met Asn Cys Ala Val Gly Asn Ile Pro Val
1080 1085 1090

TCC ATG AAT TTG CCT GAC AGC GCC TTT ACC CGC ATT GTC GAG GCG 10744
Ser Met Asn Leu Pro Asp Ser Ala Phe Thr Arg Ile Val Glu Ala
1095 1100 1105

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Figure 5 (18)

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CCG ACC ATC ATT GAC CTG ACT TGC ACA GTG GCT ACC TGT ACG CAC 10789
Pro Thr Ile Ile Asp Leu Thr Cys Thr Val Ala Thr Cys Thr His
1110 1115 1120

TCC TCG GAT TTC GGC GGC GTC TTG ACA CTG ACG TAC AAG ACC AAC 10834
Ser Ser Asp Phe Gly Gly Val Leu Thr Leu Thr Tyr Lys Thr Asn
1125 1130 1135

AAG AAC GGG GAC TGC TCT GTA CAC TCG CAC TCT AAC GTA GCT ACT 10879
Lys Asn Gly Asp Cys Ser Val His Ser His Ser Asn Val Ala Thr
1140 1145 1150

CTA CAG GAG GCC ACA GCA AAA GTG AAG ACA GCA GGT AAG GTG ACC 10924
Leu Gln Glu Ala Thr Ala Lys Val Lys Thr Ala Gly Lys Val Thr
1155 1160 1165

TTA CAC TTC TCC ACG GCA AGC GCA TCA CCT TCT TTT GTG GTG TCG 10969
Leu His Phe Ser Thr Ala Ser Ala Ser Pro Ser Phe Val Val Ser
1170 1175 1180

CTA TGC AGT GCT AGG GCC ACC TGT TCA GCG TCG TGT GAG CCC CCG 11014
Leu Cys Ser Ala Arg Ala Thr Cys Ser Ala Ser Cys Glu Pro Pro
1185 1190 1195

AAA GAC CAC ATA GTC CCA TAT GCG GCT AGC CAC AGT AAC GTA GTG 11059
Lys Asp His Ile Val Pro Tyr Ala Ala Ser His Ser Asn Val Val
1200 1205 1210

TTT CCA GAC ATG TCG GGC ACC GCA CTA TCA TGG GTG CAG AAA ATC 11104
Phe Pro Asp Met Ser Gly Thr Ala Leu Ser Trp Val Gln Lys Ile
1215 1220 1225

TCG GGT GGT CTG GGG GCC TTC GCA ATC GGC GCT ATC CTG GTG CTG 11149
Ser Gly Gly Leu Gly Ala Phe Ala Ile Gly Ala Ile Leu Val Leu
1230 1235 1240

GTT GTG GTC ACT TGC ATT GGG CTC CGC AGA TAA GTTAGGGTAG 11192
Val Val Val Thr Cys Ile Gly Leu Arg Arg
1245 1250

GCAATGGCAT TGATATAGCA AGAAAATTGA AAACAGAAAA AGTTAGGGTA AGCAATGGCA 11252

TATAACCATA ACTGTATAAC TTGTAACAAA GCGCAACAAG ACCTGCGCAA TTGGCCCCGT 11312

GGTCCGCCTC ACCGAAACTC GGGGCAACTC ATATTGACAC ATTAATTGGC AATAATTGGA 11372

AGCTTACATA AGCTTAATTC GACGAATAAT TGGATTTTTA TTTTATTTTG CAATTGGTTT 11432

TTAATATTTT CAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA 11492

AAAAAAAAAA AAAAAAAAAA ACTAG 11517

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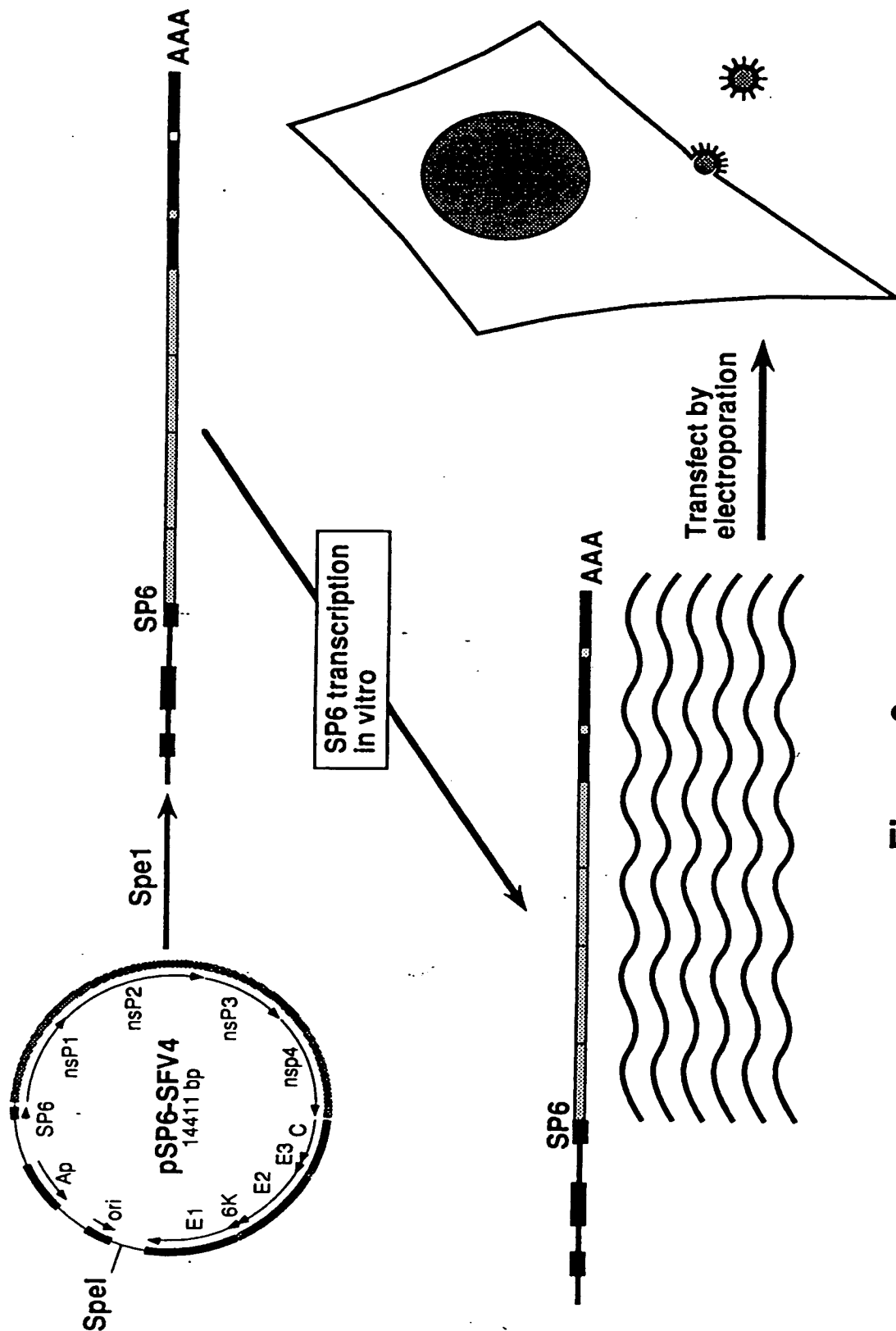


Figure 6

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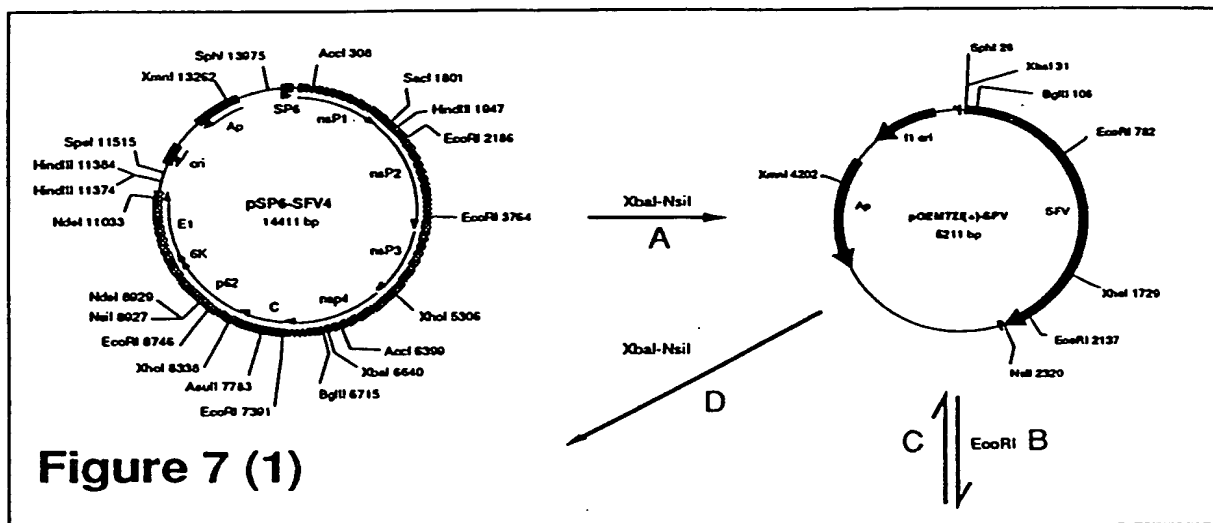


Figure 7 (1)

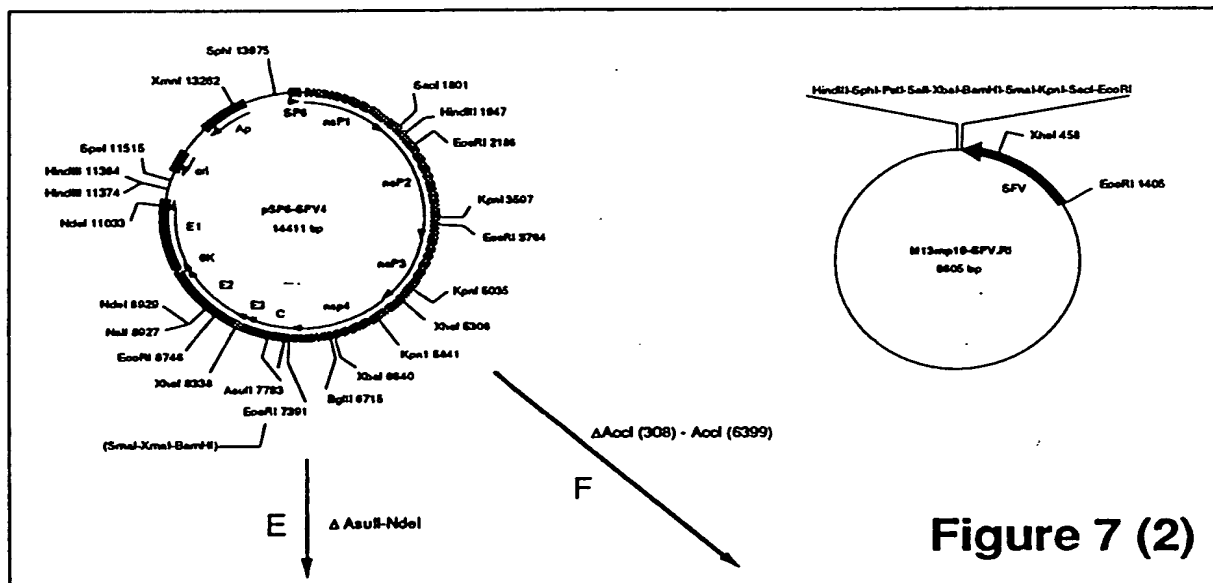


Figure 7 (2)

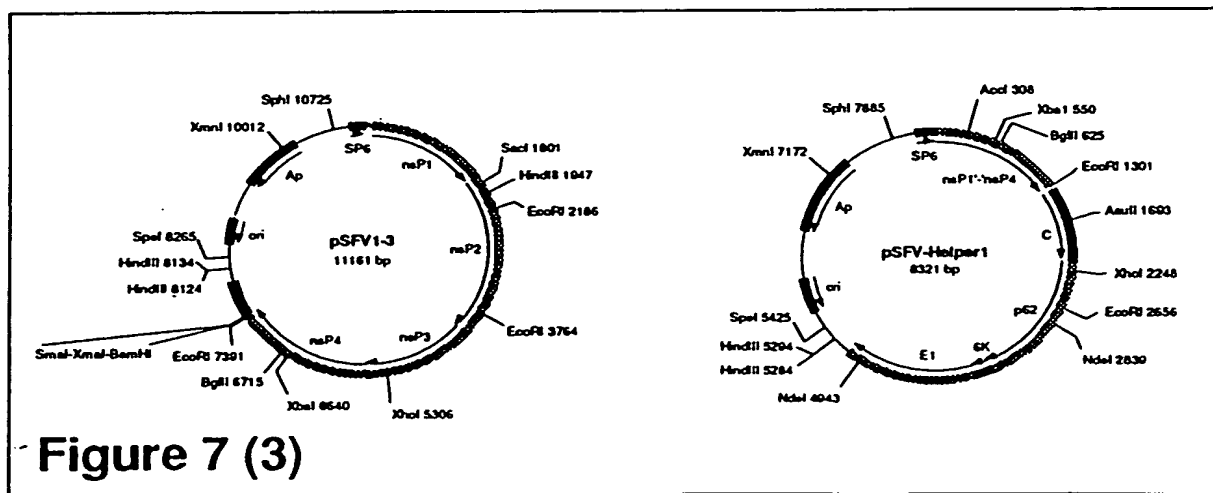


Figure 7 (3)

Figure 7 layout scheme

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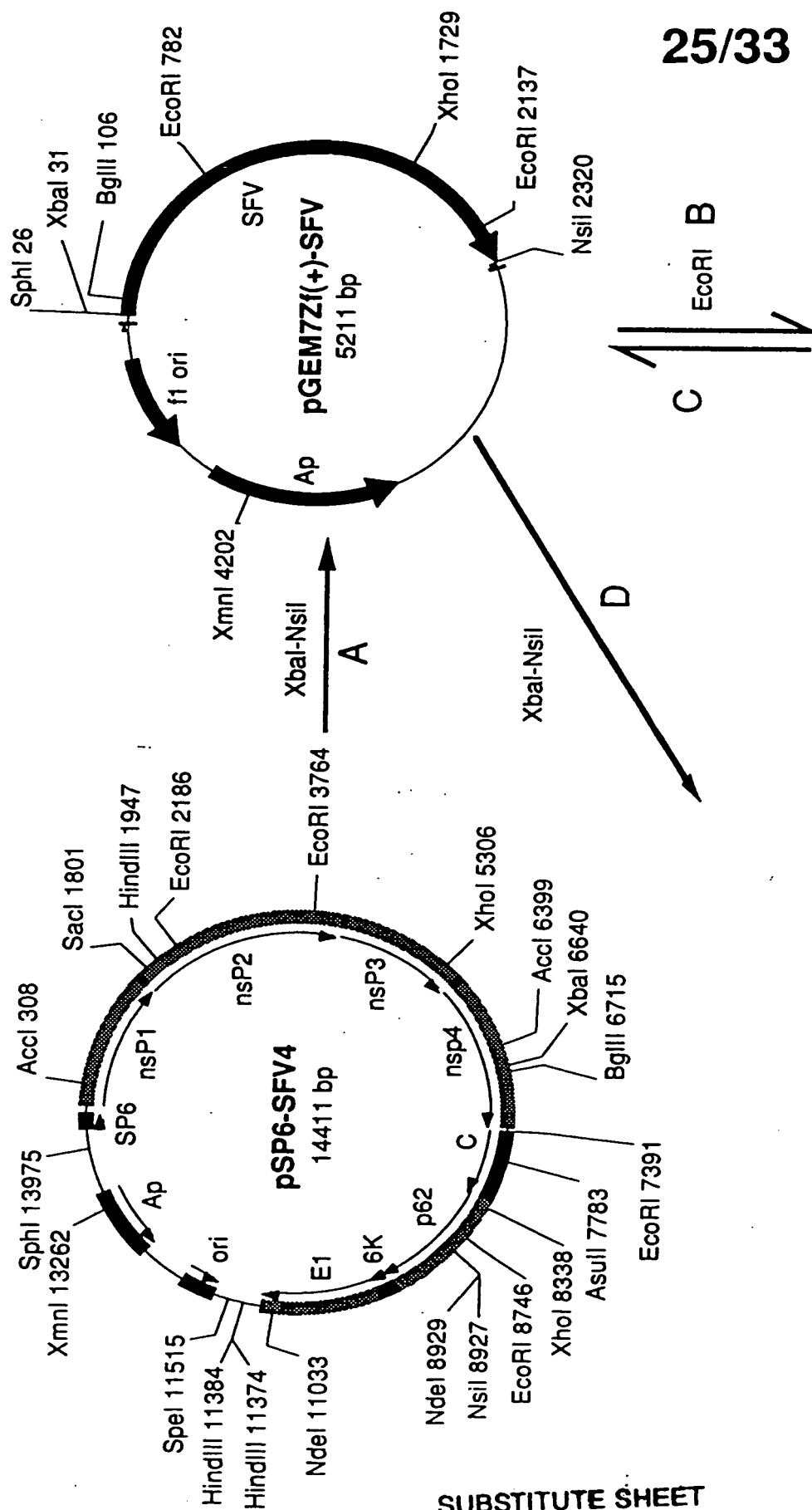


Figure 7 (1)

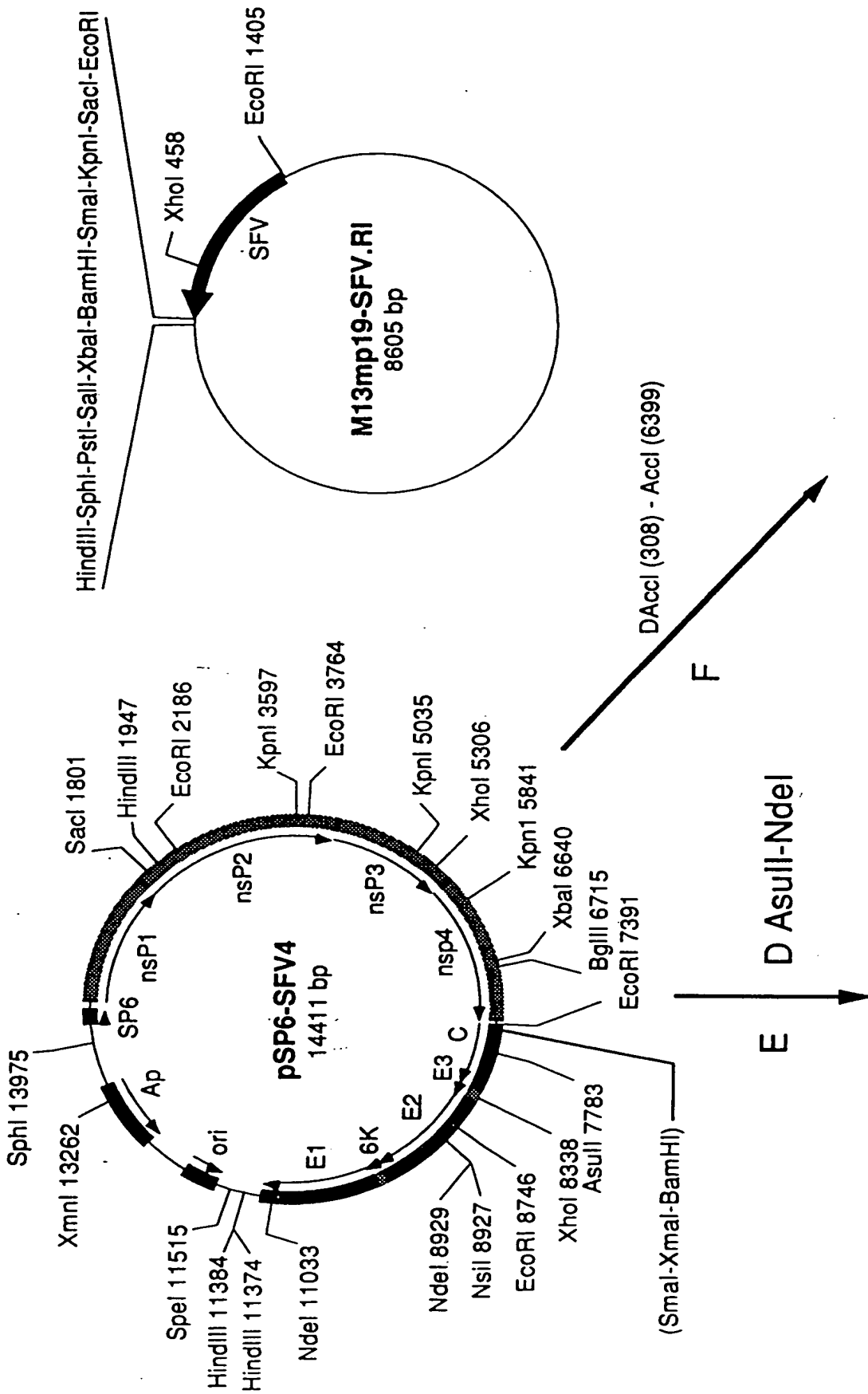


Figure 7 (2)

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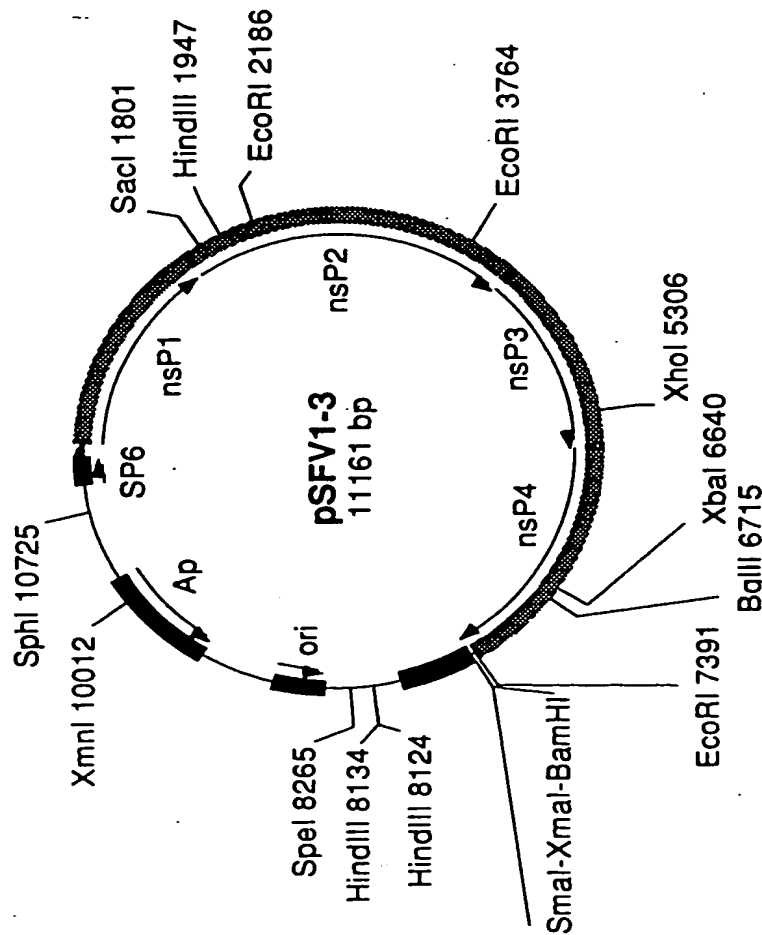
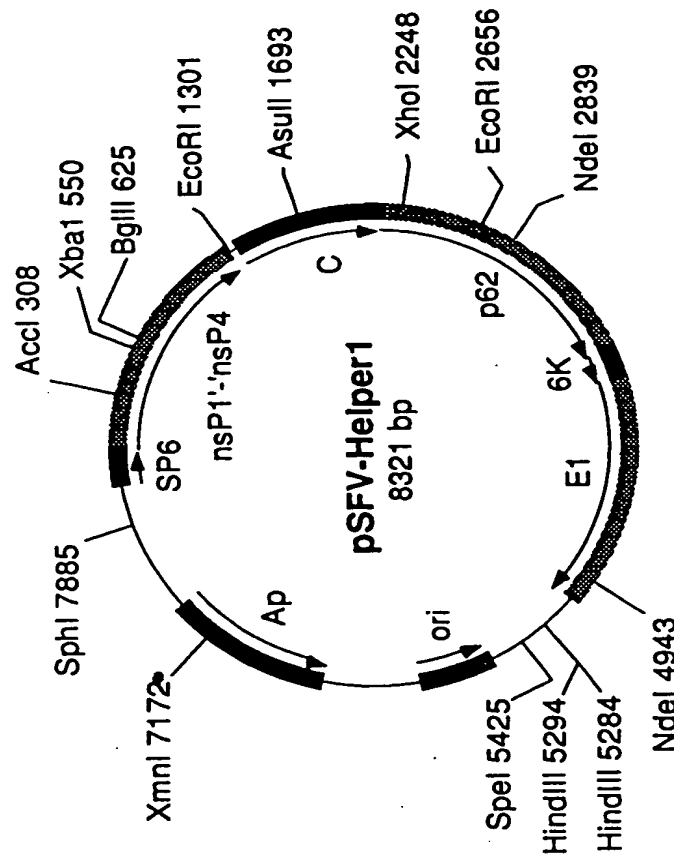


Figure 7 (3)

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FOOTNOTES

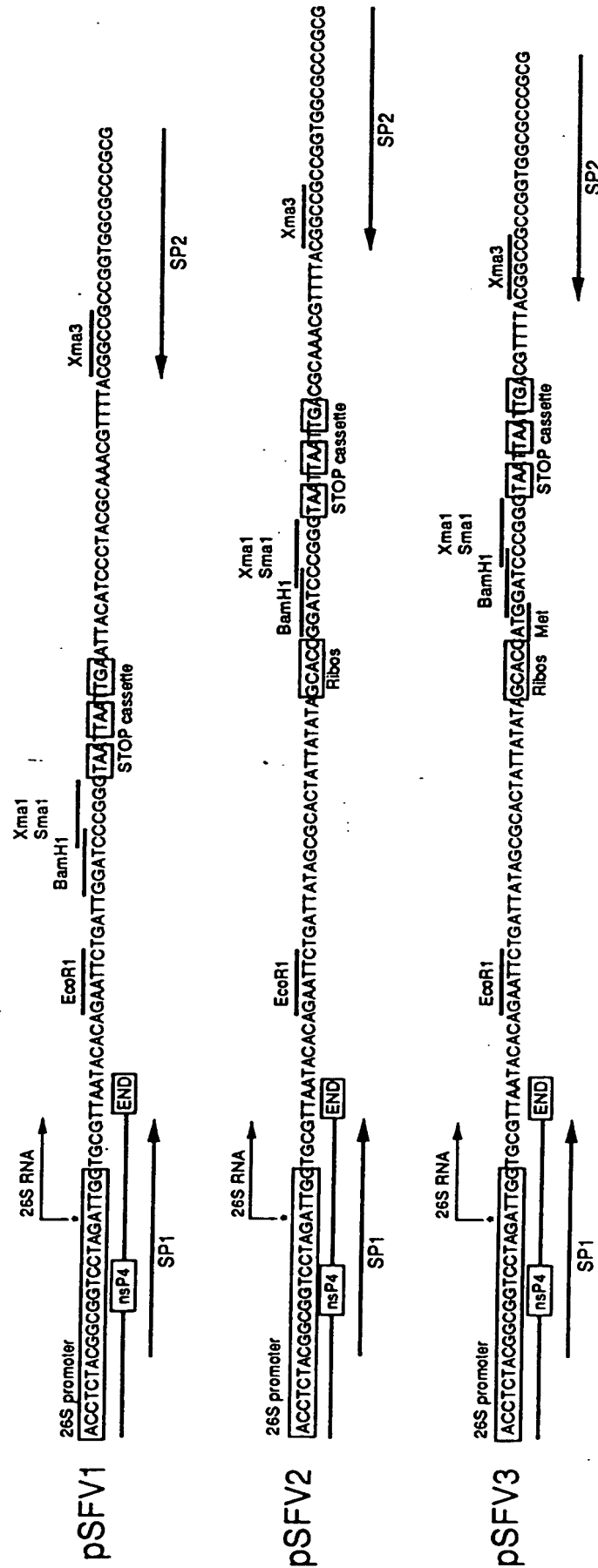


Figure 8

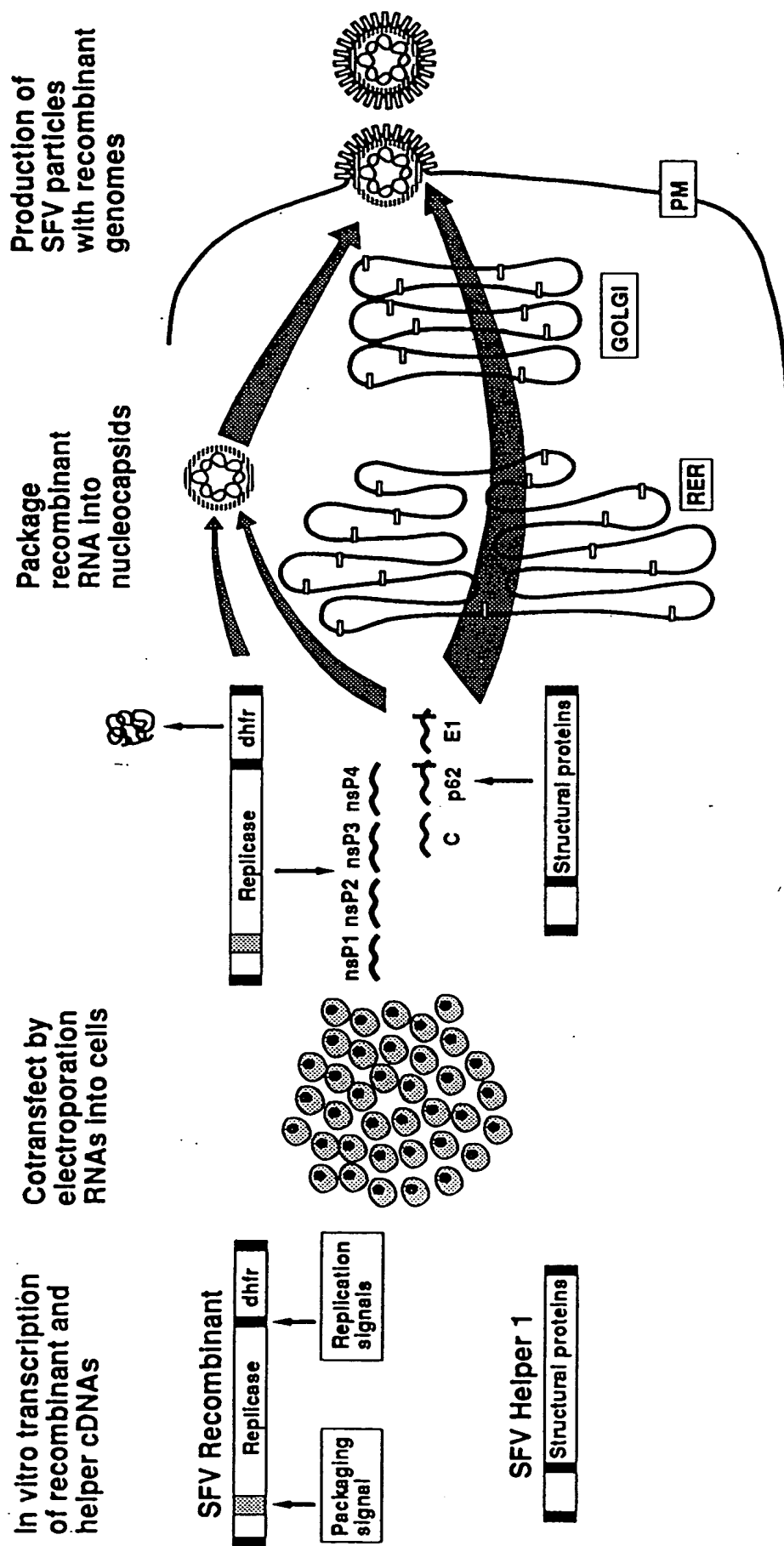


Figure 9

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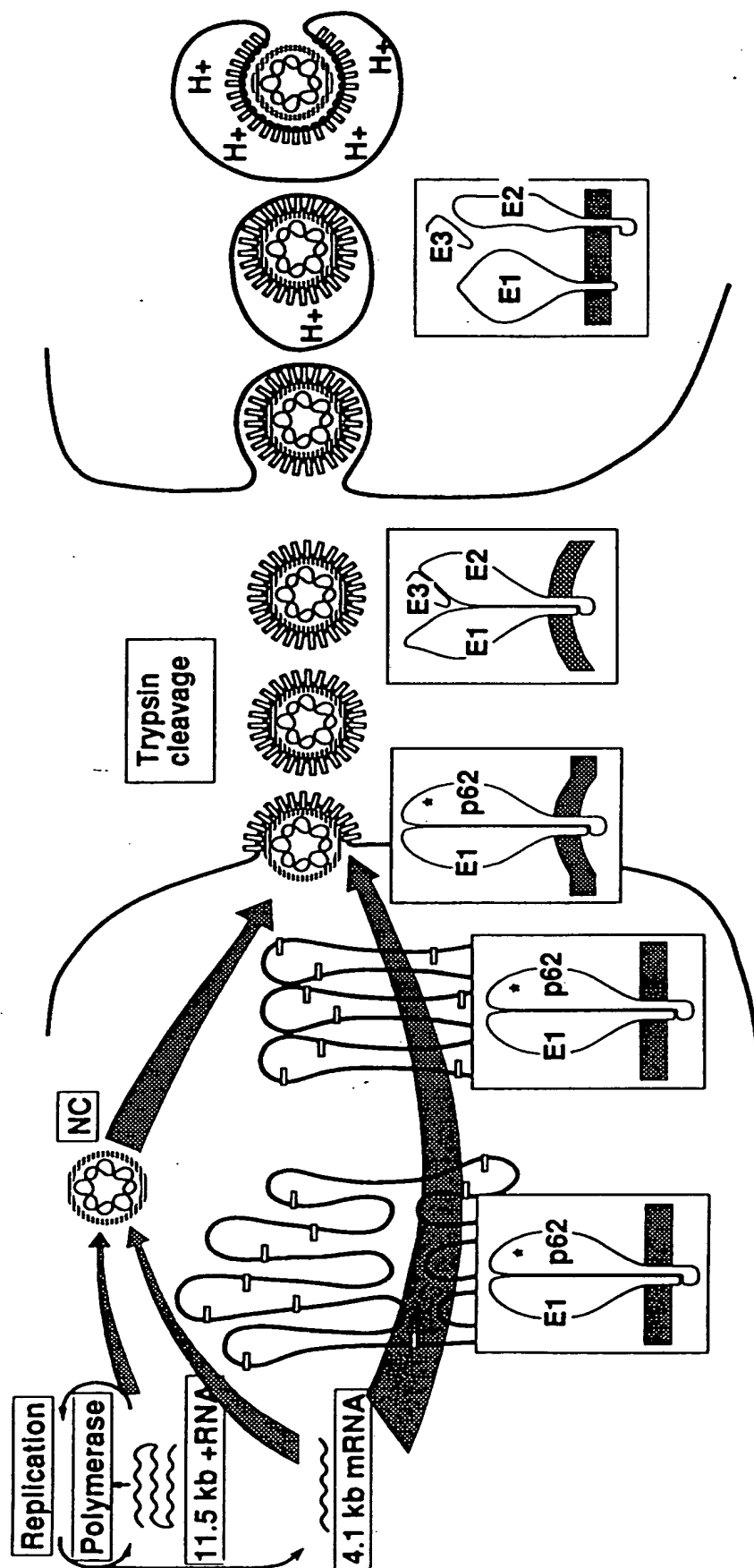


Figure 10

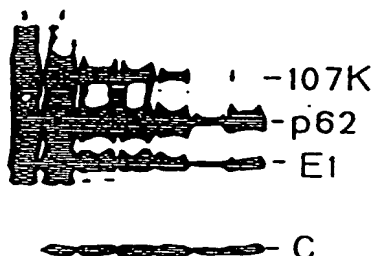
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Semliki Forest virus
wild type RNA

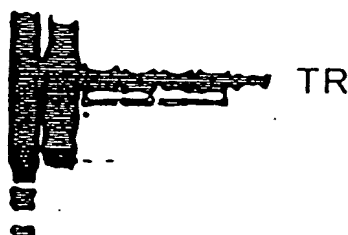
Human Transferrin
Receptor

Mouse Dihydrofolate
Reductase

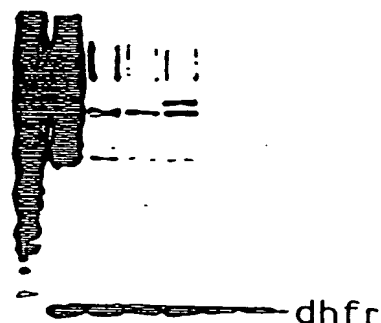
3 6 9 12 15 24 IP



3 6 9 12 15 24 IP

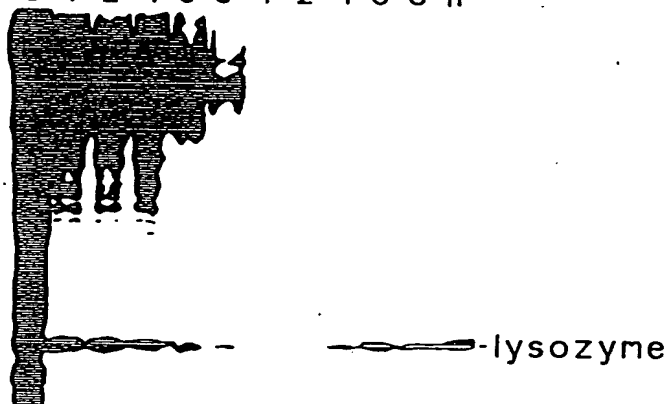


3 6 9 12 15 24 IP



Chicken Lysozyme

lysate medium
U 1 2 4 6 8 1 2 4 6 8 IP



Transferrin receptor
infection/pSFVI

5 .5 .05 .005

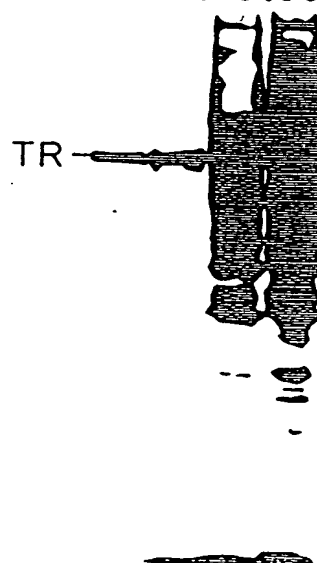


Figure 11

SUBSTITUTE SHEET

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BamH1											
---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---
AAC	TCA	CCT	TTC	GTC	CCG	AGA	GCC	GAC	GAA	CCG	CC-
Asn	Ser	Pro	Phe	Val	Pro	Arg	Ala	Asp	Glu	Pro	Ala
---	---	---	---	---	---	---	---	Glu	Asp	---	---
---	---	---	---	---	---	---	---	246	247	---	---
SVF	vector	E2	SVF	vector	E2	SVF	vector	E2	SVF	vector	E2

GAT CCG CGT ATC CAG AGA GGA CCA GGA AGA GCA TTT GTT GAG
GC GCA TAG GTC TCT CCT GGT CCT TCT CGT AAA CAA CTC CTA G
Asp Pro Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Glu Asp

HIV-gp120
HIV epitope

Cut with BamH1
Insert HIV oligo

GAG GAT CCG CGT ATC CAG AGA GGA CCA GGA AGA GCA TTT GTT GAG GAT CCG
 CTC CTA GGC GCA TAG GTC TCT CCT GGT CCT TCT CAA CAA CTC CTA GGC
 Glu Asp Pro Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Glu Asp Pro
 313

SFV-HIV chimera

Figure 12 (1)

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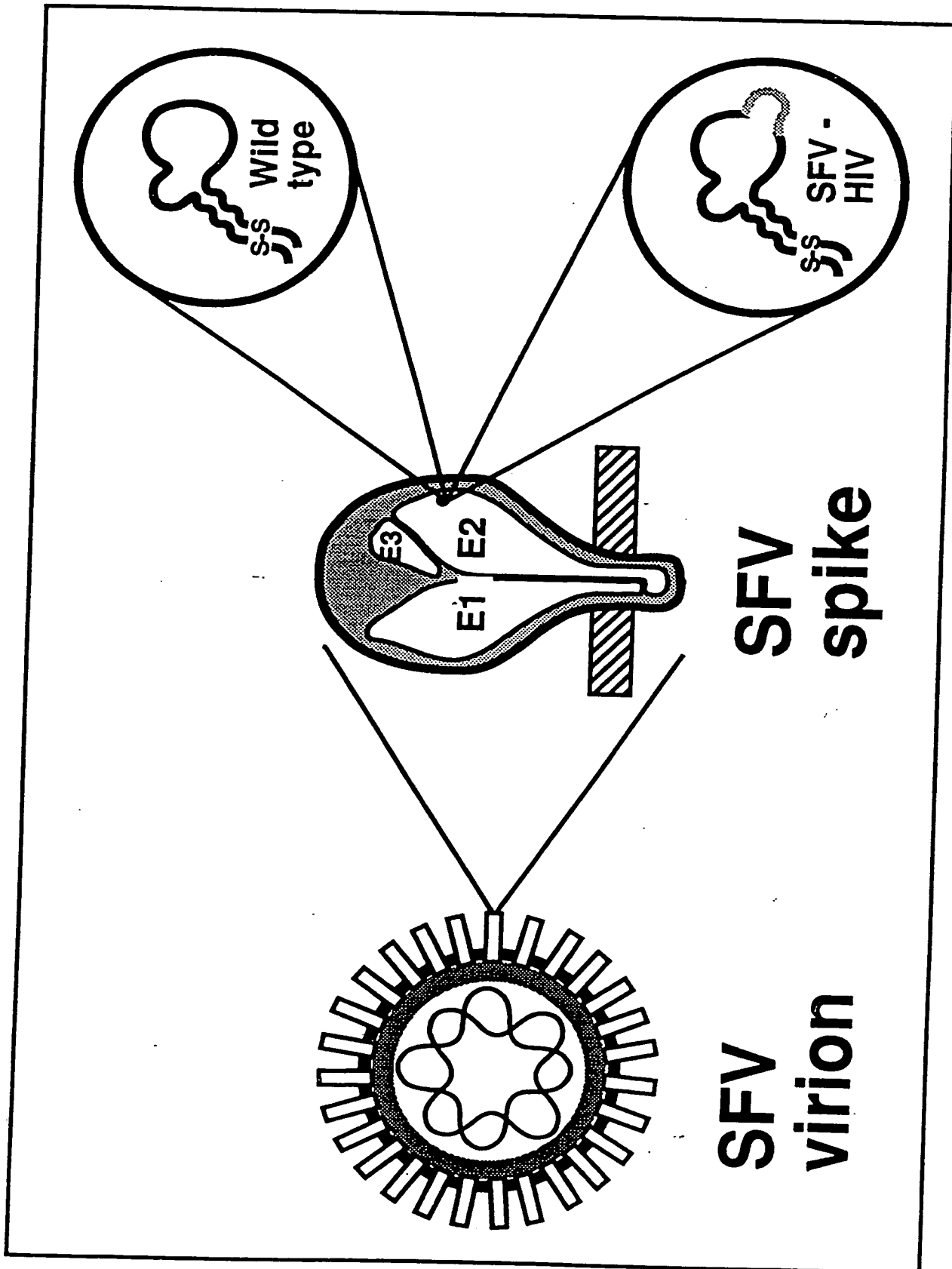


Figure 12 (2)